

**ARCHAEOSEISMICITY OF THE MOUNDS
AND MONUMENTS ALONG THE KĀZERUN FAULT
(WESTERN ZĀGROS, SW IRANIAN PLATEAU)
SINCE THE CHALCOLITHIC PERIOD**

BY

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Abstract: Our multidisciplinary investigation represents off-fault archaeoseismic indicators recorded in the archaeological remains at mounds and structural elements of monuments situated along the Kāzerun fault in the western Zāgros Mountains since the Chalcolithic period. The study revealed two large magnitude earthquakes ($\sim M_w > 7.0$, possibly ~ 7.3) ca. 3850-3680 BC and ca. 3030 BC with return periods of $\sim 735 \pm ?$ years at Tol-e Spid. Detecting only two earthquakes during the 4,000 year life span of archaeological mound is incompatible with the 3.6-3.9 slip rate along the Kāzerun fault. After a long gap in data, a strong earthquake indicator is recorded ca. 400-200 BC in Qal'eh Kāli; all located to the north of the Kāzerun fault bend. On the contrary, in addition to the vandalism episodes during the invasions of the Moslem Arabs (16/637), the Mongol hordes (1219-1250), and Timur (1370-1405), the structural elements of the royal Sasanid city of Bishāpur, located to the south of the fault bend, indicated archaeoseismic indicators of four possible earthquakes within a period of 800 years. The limited data indicate that the archaeological sites located to the north of the fault bend (Tol-e Spid, Tol-e Nurābād, Qal'eh Kāli, Tal-e Gachgaerān, Mil-e Ezhdehā, & Naubandégān) were subjected to stronger (larger magnitude) earthquakes with longer return periods. Whereas the sites located to the south of the fault bend (Sasanid royal city of Bishāpur and Kāzerun) showed evidence of earthquakes with slightly lower magnitudes and shorter recurrence periods of $\sim 270 \pm ?$ years. The study has shed light on the approximate magnitude and return period of earthquakes which could not have been achieved through the short term regional historical earthquake records. The distribution of settlements from the Chalcolithic to the present is closely associated with the trend of the Kāzerun fault. The archaeoseismic events in the past were disastrous to urban areas and the fault

constitutes a continuing hazard to the local population and their irreplaceable monuments.

Keywords: Archaeoseismicity, Kāzerun active fault, Tol-e Spid, Tol-e Nurābād, Qal'eh Kāli, Naubandégān, Mil-e Ezhdehā, Bishāpur, Kāzerun, Zāgros, Iran

I. Introduction

The Zāgros mountain range of the southwestern Iranian plateau is one of the Earth's most seismically-active fold-and-thrust mountain belts (Fig. 1). At present, it is marked by rapid deformation in the form of active folding and uplifting as well as active basement and surface faulting (Berberian 1995; Mouthereau et al. 2012). The Zāgros is characterized by NW-SE trending longitudinal folds and reverse faults, and nearly N-S transverse right-lateral strike-slip active faults cutting the former structures (Berberian 1995). The belt accommodates about 8 mm/yr of the 25 mm/yr total N-S crustal shortening of the Iranian plateau between Arabia and Eurasia at about longitude $\sim 53^\circ\text{E}$ (Tatar et al. 2002; Vernant et al. 2004; Walpersdorf et al. 2006) (fig. 1). The post-1900 seismicity in the Zāgros is dispersed and the pre-1900 earthquake data are incomplete and inhomogeneous (Table 1) (Ambraseys & Melville 1982; Berberian 1981, 1994 & 1995).

The Zāgros, the Alborz, and the Kopeh Dāgh fold-and-thrust mountain belts (fig. 1 and 2) all have high annual rainfall, abundant arable lands, large braided perennial rivers, and numerous natural karstic and/or fault springs. Archaeological research has shown that each of these belts supported numerous ancient settlements at least from the early Neolithic period onwards. Furthermore, ancient settlements in the semi-arid to arid parts of the tectonically-active Central Iranian plateau were located on limited arable lands with fault-controlled secure water supplies along a number of mountain-bordering reverse and strike-slip faults, which were suitable for use as passageways through the mountains during prehistory.

There is a lack of palaeoseismologic trench studies across the active surface faults of the Zāgros, but archaeological data have the potential to offer insight into the long-term seismicity and expand our knowledge of the temporal and spatial distribution of ancient earthquakes. If archaeological records are carefully investigated and integrated with historical seismic and fault data, the earthquake records of regions will be extended, and this will ultimately improve the capacity for seismic hazard assessment.

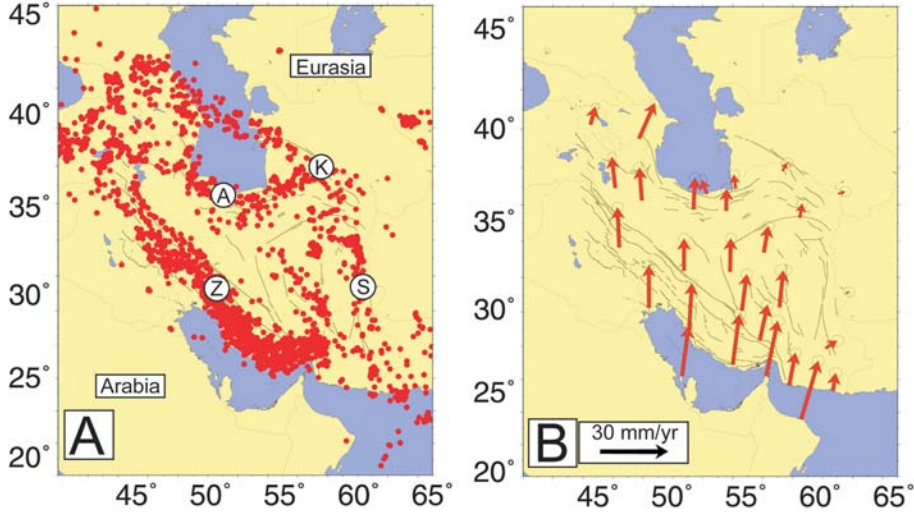


Fig. 1. (a) Seismicity of Iran 1964–98, from the catalogue of Engdahl et al. (1998). The Zāgros Mountains in the SW are marked by Z, the Alborz Mountains in the north by A, the Kopeh Dāgh by K, and the Sistān region by S. (b) Map of Iran showing GPS velocity points relative to Eurasia (Vernant et al. 2004). The GPS velocities decrease to zero at both the northern (Kopeh Dāgh) and eastern (Sistān) margins of Iran, suggesting that the Arabia-Eurasia convergence is accommodated within the political borders of Iran. Most of the active deformation occurs in the seismically active Zāgros (in the SW and S), Alborz (north, south of the Caspian Sea) and Kopeh Dāgh (NE) Mountain. The study area along the Kāzerun fault is located to the immediate south of letter Z in the Zāgros.

A number of medium- to large-magnitude earthquakes have devastated ancient Iranian monuments and archaeological sites that were built adjacent to active faults. These events would have affected ancient civilizations, constrained patterns of settlement, and ultimately have had long-term social and cultural impacts (Berberian 1994; Berberian & Yeats 2001; Berberian et al. 2012).

The main purpose of this paper is to examine archaeological and architectural data from some excavated archaeological sites that are located adjacent to the active Kāzerun transverse fault in the western Zāgros (fig. 1 and 2), in order to evaluate possible traces of the effects of ancient earthquakes. We combine interpretation of the prehistoric archaeological record and architectural deformation with evidence for historically documented earthquakes, old chronicles, and geological, morphological and seismological data to correlate ancient earthquake indicators visible at

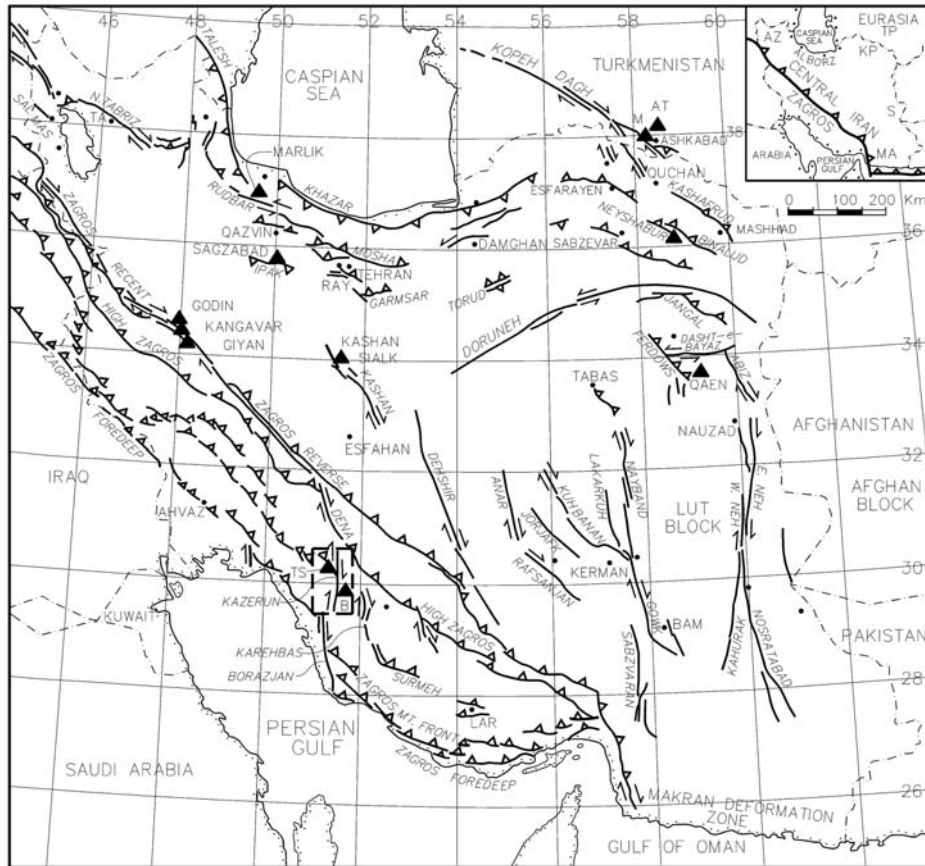


Fig. 2. Location of the study area along the Kāzerun active right-lateral strike-slip fault in the Zāgros fold-and-thrust mountain belt of the southern Iran (marked by a box) in the context of the major active faults of Iran (fault names in *italics*). Reverse faults are shown with teeth on hanging wall side. Strike-slip faults shown with arrows (after Berberian & Yeats 2001; Berberian 2005). Archaeoseismic sites discussed in this paper (Table 5) are shown by filled triangles (AT: Āk Tapeh; B: Bishāpur; M: Mithrādātkart, modern Nesā; TS: Tol-e Spid, Qal'eh Kali, & Tol-e Nurābād; Mārlik; Sagzābād; Sialk; and Qā'en). Inset top right: Map of Iran showing different structural belts, AZ: Āzarbāijān; KP: Kopeh Dāgh fold-and-thrust mountain belt; MA: Makrān accretionary wedge; S: Sistān suture zone; and TP: Turān Plate. The Zāgros fold-and-thrust mountain belt is located to the SW of the country.

archaeological sites with their source faults in the study area. This is an important issue in seismic risk evaluation of this part of Iran, where no pre-1824 earthquakes have been documented in the available historical text corpus (Table 1). In order to execute this difficult task we have to review the archeological data focusing on archaeoseismic indicators and foot-prints hidden in archaeological mounds and buildings, as well as historic photographs taken during excavations.

We hope the paper will make archaeologists, seismologists, and earthquake geologists working in the greater Near East more aware of these issues. As discussed below, the archaeological evidence of strong ground motion is oftentimes sufficient to conclude that there were indeed instances when damage, destruction, and deformation were indeed earthquake-induced and not solely a result of anthropogenic or meteorological processes, such as erosion, leaching or weathering of archaeological deposits. The data expands our knowledge of the activity of the Kāzerun fault, enables a better understanding of the periodicity of earthquakes, improves our assessment of seismic hazard in the region, and helps mitigate seismic risks for the present population living in the nearby towns and villages (e.g. Yāsuj, Nurābād, Kāzerun, Borāzjān, Ahram, and Khormuj). It may also help preserve the cultural heritage of the area (the Sasanid city of Bishāpur, Mil-e Ezhdehā, etc.) from future earthquake damage.

The excavations carried out at the Mamasani archaeological sites were limited in scope and the observations presented here were based on archaeological deposits exposed in small soundings, often excavated deep into the stratigraphic deposits. The early excavations at the Sasanid city of Bishāpur were limited to the 1930s knowledge and observation, and some of the later excavations were not systematic or conclusive. None of the excavation expeditions included archaeoseismicity in the project. The reaction of the ancient inhabitants of the region to the devastating earthquakes identified below is not clearly known. Furthermore, some dates are not very precise and further research is needed to improve the quality of the data. Nevertheless, despite the obvious limitations of the available archaeological record, we have been able to shed light on major events that have affected sites in this region.

We tried to substantiate some of the archaeological findings or events with the historic chronicles. Tables are designed to facilitate understanding and checking the complicated chronology of the natural and anthropogenic events in the region as well as help in constraining the location of

the earthquakes in space and time. All dates have been converted to the Gregorian calendar system used in the West. In order to assist location of accounts in ancient Persian and Arabic sources, Arabic Hijra lunar (pre-1900 AD) and Persian Solar (post 1900 AD) calendar years are added throughout the text and the Tables. Note that the Persian and Arabic names and words in this report are written as correctly pronounced and with direct and simplified transliteration into English. The recognition of the Persian possessive [afzudeh; or ezāfé in Arabic], which inaccurately appears variously in English, especially as ‘-i’ [thus: Shahr-i Kurd] is correctly shown as ‘-e’ [cf. French ‘é’; thus: Shahr-e Kord], as conforms to the correct current usage in the Persian language (Fārsi). Elevations given are in meters above mean sea level. Coordinates of the discussed sites are given in the Tables or the text.

II. Seismotectonic setting of the Kāzerun active strike-slip fault

II.1. *The Kāzerun Fault*

The NW-SE (in the west) to E-W (in the east) longitudinal folds and reverse basement and surface faults of the Zāgros are distorted and disrupted locally by the nearly N-S to NNW-SSE zones of right-lateral strike-slip fault movements. There are at least three major right-lateral strike-slip faults cutting the Zāgros folds and faults (fig. 2). These are: the Kāzerun, the Karehbas, and the Sarvestān faults (Berberian & Tchalenko 1976; Berberian 1981 & 1995). The fault zones are marked by an alignment of the Upper Vendian-Lower Cambrian Hormoz Salt plugs, which have been faulted and displaced right-laterally since their emplacement, indicating the transverse faults cut the Zāgros basement at depth. The courses of some streams are partly controlled and diverted by these active transverse strike-slip faults indicating their continuous activity.

The Kāzerun active fault is located in western Fārs province, about 15 km to the west of Kāzerun town. It is a nearly N-S fault system, about 350 km-long, which crosses the Zāgros trend and bends, drags, and offsets the NW-SE fold axes and reverse faults in a right-lateral strike-slip sense (fig. 2). It is composed of three segments: Denā (in the north), Kāzerun (center), and Borāzjān (in the south), and cuts the entire width of the belt (Berberian 1995). In this study we concentrate on the central segment of the Kāzerun fault, which is about 120 km long, from the area southwest

of Kāzerun in the south to the southwest of Yāsuj in the north (fig. 2). Regression between fault length, magnitude and displacement (Wells & Coppersmith 1994) suggests that the 120 km long Kāzerun fault is capable of generating maximum credible earthquake of magnitude M_w 7.5 (M_{\max}) with maximum and average right-lateral horizontal displacement of ~ 4.8 and ~ 2.6 m, respectively, if the whole 120 km fault length ruptures during a single event.

Active fault slip rate is directly associated with the recurrence periods of earthquakes rupturing a seismic fault, and is an important factor in the earthquake-fault hazard analysis. Cumulative right-lateral displacement of 140 and 150 km of the Zāgros Mountain Front (MFF) and the Zāgros Fore-deep Faults (ZFF) can be measured respectively along the Kāzerun fault (Berberian 1995). However, the commencement of the motion along the fault is not accurately known. Late Quaternary geological right-lateral slip rates along the Kāzerun fault were estimated at 1.5–3.5 mm yr⁻¹ (Authemayou et al. 2009). GPS measurements provided a precise estimate of the present-day right-lateral slip on the Kāzerun fault about 3.6 ± 0.6 mm/yr (Tavakoli et al. 2008). GPS velocities and 3D mechanical modeling of the fault resulted in slip rate of 3.9 mm/yr for the Kāzerun fault (Nankali 2011). These estimates indicate that the Kāzerun fault accommodates almost half of the 8 mm/yr shortening across the Zāgros.

II.2. *Seismicity of the Central Kāzerun Fault*

The earliest historically recorded earthquakes along the Kāzerun fault are two earthquakes which took place on 1824.06.02 ($I_o \sim \text{VIII}$, $M_s \sim >6.0$) at Bishāpur, and on 1891.12.14 at Golgun ($I_o \sim >\text{VII}$, $M_s \sim >5.5$), NNW of Kāzerun (fig. 3) (Irān, 1309; Alexander 1827; Fasā'i 1313/1895; Ambraseys & Melville 1982; Berberian 1994 & 1995). A lack of large-magnitude earthquakes during the last short period of 188 years (since 1824) does not necessarily indicate that such earthquakes did not occur in the past and will not occur again in the area. This could be due to the fact that the rate of strain accumulation in the continental crust is usually slow, and time is required for the accumulation of strain before it is released along the faults during earthquakes. We are not aware of the returning period of earthquakes in this part of the Zāgros. However, we know that the return periods may range from several hundred to a few thousand years (Berberian 1995; Berberian & Yeats 1999 & 2001) and we try to shed some light on this issue for the study area.

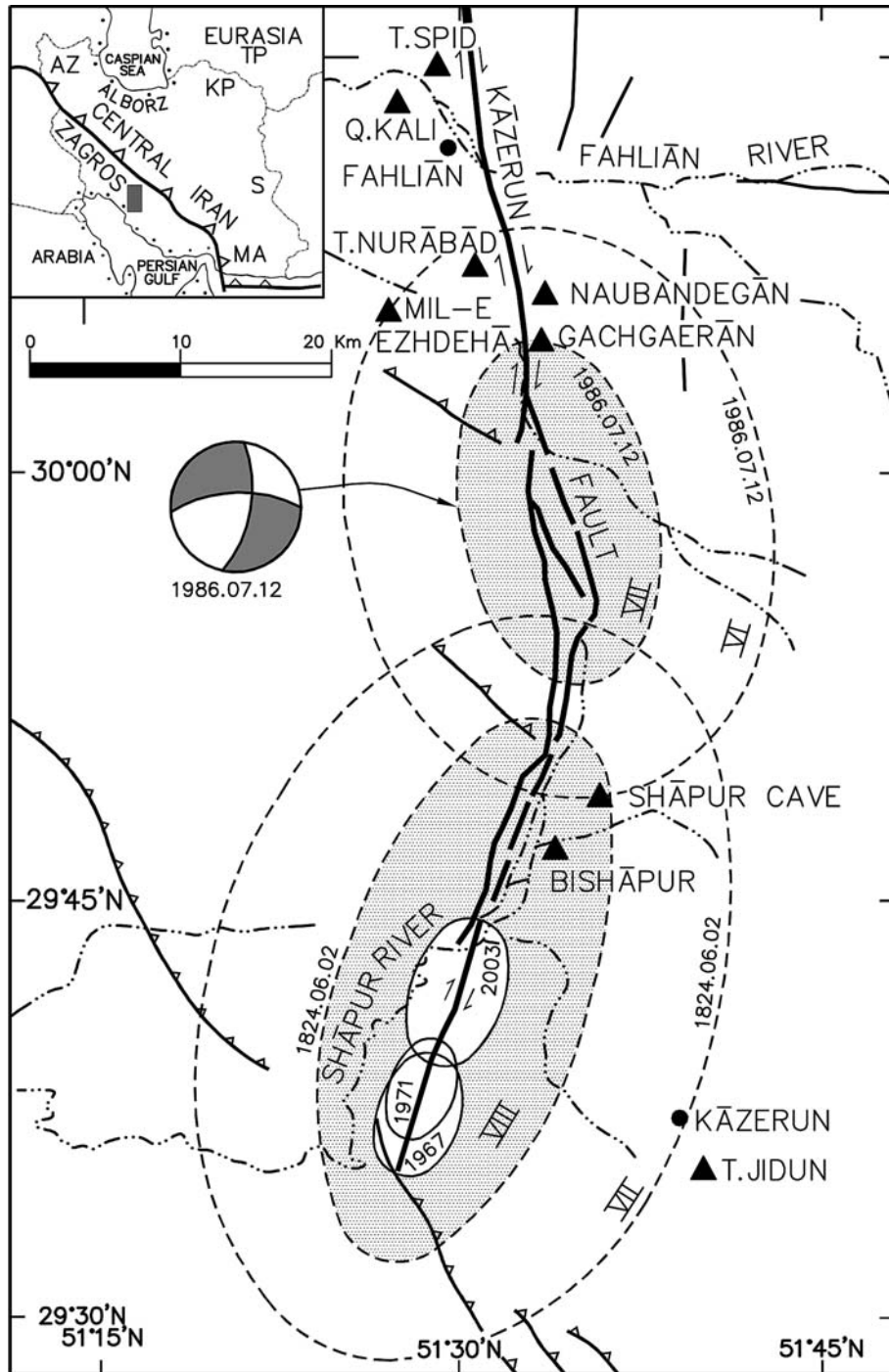


Fig. 3. Fault and earthquake map of the study area along the Kāzerun transverse right-lateral strike-slip fault with the discussed archaeological sites (shown by filled triangles: B: Bishāpur, QK: Qal'eh Kali, TN: Tol-e Nurābād, TS: Tol-e Spid). Large ellipses: Meizoseismal areas of the two medium-magnitude earthquakes (MMI isoseismals marked with intensity) of the 1824.06.02 ($M_s \sim 6.0$, $I_o \sim \text{VIII}$) and the 1986.07.12 (M_w 5.5, I_o VII) along the Kāzerun fault (see Table 1). The epicentral areas of the 1967.01.15 (M_s 4.2), 1971.10.23 (m_b 4.7), and 2003.01.11 (M_w 5.2, I_o VI+) small-magnitude earthquakes along the fault also shown. Note the right-lateral (arrows) course diversion of the two rivers of Fahliān and Dorughzan by the motion along the Kāzerun fault. Fault plane solution of the 1986 earthquake indicating a right-lateral strike-slip mechanism is from Baker et al., 1983. The adjacent longitudinal reverse faults are shown by thinner lines with teeth on the hanging-wall side.

The concentration of post-1900 instrumentally determined epicenters along the Kāzerun fault is not particularly heavy, especially if allowance is made for inaccuracy concerning the pre-1960 earthquake epicenters (Ambraseys 1978; Berberian 1979a). Three of the epicenters that seem to underlie the Kāzerun fault zone occurred too early (1930.09.02; 1934.02.04 felt in Kāzerun and Shirāz; and 1936.08.20) to be located accurately by instrumental means alone. No macroseismic information has been found to date on these events (Berberian and Tchalenko, 1976). During the Kāzerun earthquake of 1946.03.12 (M_s 5.7) most ceilings and plasters cracked in Kāzerun and several people were buried under the ruins. Some walls cracked in Bushehr, 104 km to the southwest, and the shock was also felt in Shirāz and Marvdasht (Table 1) (Irān-e Mā, 1324.12.23; Etelā'aāt 1324.12.22 & 23; Bozorgniā 1962; Nabavi 1972 & 1977; Berberian & Tchalenko 1976; Ambraseys & Melville 1982).

Two small shocks that took place on 1967.01.15 (M_s 4.2) and 1971.10.23 (m_b 4.7) were instrumentally located on or very near the Kāzerun fault, and damaged Komāraj at the southern tip of the fault (fig. 3, Table 1) (Berberian & Tchalenko 1976; Berberian 1981 & 1995). The earthquake of 1967.01.15 was associated with slight secondary ground deformation near Deh Kohneh in the Komāraj plain. It damaged two old caravanserais and rockfalls were reported in the mountains. During the earthquake of 1971.10.23 a few old houses were damaged in Komāraj and Deh Kohneh (fig. 3). It was felt in Konār Takhteh and rockfalls were reported in the Komāraj area (Berberian & Tchalenko 1976). An earthquake on 1986.07.12 (M_w 5.5, I_o VII) damaged several villages near Golgun and Harāyerz (fig. 3) along the Kāzerun fault (Berberian 1995).

P & SH body waveform modeling of the earthquakes along the Kāzerun fault (Table 1) indicates a right-lateral mechanism with centroid depths ranging from 6 to 10 km with a ± 2 -4 km error in depth (Baker et al. 1993; Berberian 1995, see CD_w and FT/REF in Table 1).

By deleting earthquakes with thrust/reverse mechanisms associated with the reactivation of the adjacent longitudinal reverse faults (1968.06.23, M_w 5.5; 1981.04.01, M_w 5.4; 1990.12.16, M_w 5.7; and 2010.09.27; see also Baker et al. 1983; Berberian 1995), the earthquakes with right-lateral strike-slip mechanism associated with the Kāzerun fault, or those with macroseismic epicenter on the fault are presented in Table 1. Table 1 shows that during the short-term (~188 yrs) documented seismic history along the Kāzerun fault (central segment), two earthquakes of magnitude

$M_s > 6.0$, six M 5.5-5.9; and seven M 5.1-5.4 earthquakes took place along the fault. Hence, the chances of documenting archaeoseismic indicators in the adjacent archaeological mounds and monuments should be very high if such indicators and footprints are searched for carefully along this active fault with cumulative long-term slip-rate of 3.6-3.9 mm/yr.

II.3. *Seismicity-Faulting Pattern and Fault Bend Geometric Complexities Along the Kāzerun Fault*

There is a distinct bend along the central Kāzerun fault orientation (at about 20.93°N-51.60°E; see fig. 3) which apparently controls the seismicity pattern along the fault. The southern 1/3rd of the fault (about 40 km long with $M_{w \max} \sim 6.9$ capability) does not follow the general N-S to NNW-SSE strike of the northern section (80 km long with $M_{w \max} \sim 7.3$) and bends to the SSW (fig. 3). The 188-yr seismic record (Table 1) clearly indicates that only the southern sections of the central segment of the Kāzerun fault (to the immediate north and south of the fault bend; see fig. 3) were reactivated. Except for the 1988 event [which possibly took place on off-axis secondary fault to the east; see Figure 7 in Berberian 1995], there seems a special pattern in the location of medium-magnitude earthquakes (M 5.5-6.0) with respect to the fault bend. The 1824 earthquake to the south of the fault bend (fig. 3) was followed by the 1891 earthquake to the north of the bend. About 55 years later the seismicity jumped to the south of the fault bend with the 1946 earthquake. Forty years later the 1986 event occurred to the north of the fault bend (fig. 3 and Table 1).

We know that fault bend geomorphic complexities affect the rupture process during nucleation and arrest. Stresses could initiate rupture on fault bend, and rupture in individual earthquake often is limited to regions between bends in faults (King & Nabelek 1985; King 1986; Poliakov et al. 2002). We would like to see if such pattern existed in the archaeoseismic data and that if the Kāzerun fault bend prevented the entire 120 km rupturing of the fault by single M_w 7.5 event. We will get to this issue later in the text.

There is no evidence of a large-magnitude earthquake ($M_w > 7.0$) rupturing the entire 120 km length of the Kāzerun fault during the short time period of 188 years. Due to the lack of a pre-1824 seismic record, such a statement cannot be made for historic and pre-historic times, but archaeoseismic

and palaeoseismologic investigation may resolve this issue. It is clear that seismicity data covering a relatively short time interval of 188 years does not permit an accurate evaluation of the maximum credible earthquake and recurrence intervals of such events. As with the Zirkuh (Berberian et al. 1999) and the Gowk (Berberian et al. 2001) active faults, it is probable that during a ‘worst-case-scenario earthquake’, the whole length of the Kāzerun fault be reactivated with a single large-magnitude earthquake. Such an earthquake and rupture propagation towards the towns of Kāzerun (29°37’N-51°39’E), Nurābād (30°06’N-51°31’E), and Yāsuj (30°40’N-51°35’E) would have severe consequences for the region in terms of loss of life, livestock, and material damage. The probability of simultaneous rupturing of contiguous segments with maximum credible earthquake (MCE) is a serious risk for the mentioned towns and numerous villages located along the fault line.

Obviously, the number of people killed during the archaeo- and historic-earthquakes (Table 1) as well as the number of houses destroyed or damaged were definitely quite small by the modern standards experienced in Iran (Berberian 2005). The towns of Kāzerun, Yāsuj, and Nurābād with a population of 84,594, 96,786, and 51,668, respectively [2006 census (Statistical Center of Iran)] will suffer more casualty and damage than those experienced earlier.

Except for the 2001.12.11 (mb 4.4, NE Kushk) earthquake north of Tol-e Spid archaeological mound, no instrumental epicenter is located along the northern section of the central Kāzerun fault from Nurābād and Tol-e Spid (in the south) to Yāsuj (in the north). In comparison with the seismic activity south of Tol-e Spid/Nurābād, the northern section of the central Kāzerun fault has been relatively quiet since 1824 (Table 1; fig. 3). Since the northern 80 km fault section is double the length of the southern section to the south of the fault bend, we anticipate that the northern section earthquakes are stronger events with longer return periods. We will try to see if such pattern existed in our archaeoseismic investigation.

III. Archaeoseismicity of the Mounds and Monuments along the Kāzerun fault

Although active faults and folds provided a fault-controlled, secure water supply and life as well as passageways through the mountains, it is clear that ancient settlements located in close proximity to them were affected by strong earthquakes. At a number of sites, ancient earthquakes

have left their marks on monuments and archaeological strata. Like modern seismometers and accelerometers these ‘*archaeoseismic indicators*’ or ‘*archaeoseismometers*’ record information about the frequency, intensity and nature of ancient earthquakes.

Evidence of strong ground motion created by large-magnitude earthquakes has already been documented at a small number of archaeological sites in the Iranian plateau (Berberian & Yeats 2001). Moreover, there is evidence for site abandonment (Wilkinson 1986) and shifts in settlement location after some large-magnitude earthquakes, as well as post-seismic structural innovations enabling the construction of structures able to withstand strong ground motion (Berberian et al. 2012).

Several archaeological mounds and monuments are situated along the Kāzerun fault, and these have the potential to reveal archaeoseismic imprints. In this paper we present data from some excavated sites and monuments. It should be reiterated that neither archaeoseismic indicators at archaeological sites nor the palaeoseismology of the active faults in Iran have been studied to the extent that they have in many other regions (McGuire et al. 2000; Meghraoui et al. 2003; Galadini et al. 2006; Niemi 2008; Pérez-Lopez et al. 2009; Reicherer et al. 2009; Silva et al. 2011). We, therefore, have to rely on the limited exposures of archaeological soundings, excavation reports, and photographic documentation taken during excavations.

In this section we review the off-fault strong ground motion effects on structural elements and archaeological stratigraphy of mounds and monuments in the vicinity of the Kāzerun active fault (fig. 3). Since there is a sharp bend along the fault, we first introduce the sites located to the north of the fault bend (Tol-e Spid, Tol-e Nurābād, Qal’eh Kāli, Naubandégān, Mile-e Ezhdehā, and Tal-e Gachgareān) and then we end up with the sites located to the south of the fault bend (Bishāpur and Kāzerun).

III.1. *Tol-e Spid [Espid/Sepid; lit., The ‘White Mound’]*

Tol-e Spid is located near the center of the fertile intermontane plain of Dasht-e Rostam-e Yek in the Mamasani area (Petrie et al. 2009), about 72.5 km NNW of the town of Kāzerun, and 47.5 km SSW of the town of Yāsuj. It is about 2.2 km to the west of the Kāzerun active fault, northeast of the Fahliān River (fig. 3 and 4), the course of which has been right-laterally displaced about 6 km along it (fig. 3).



Fig. 4. Google Earth image showing major sites in the Mamasani area in the western Zāgros and their proximity to Bishāpur. North is to the top of image. The Kāzerun fault is visible as a linearity that from south to north runs to the west of Bishāpur, and to the east of Tol-e Nurābād and the north-east of Tol-e Spid. The location of Tal-e Malyān is shown for orientation.

The fertile intermontane valleys of Dasht-e Rostam-e Yek, Rostam-e Dau, and Nurābād (discussed later; fig. 4) were formed during the NW-SE longitudinal folding and thrusting of the Zāgros belt. By cutting the folded mountains, the Kāzerun transverse strike-slip fault created the main ancient passageway through the Zāgros Mountains from the area to the southwest of Kāzerun to Bishāpur, Nurābād, Fahliān, and Yāsuj, and there is evidence for ancient settlement in each of these areas (figs. 2-4).

The Tol-e Spid area underwent an intensity of V during the July 12, 1986 (M_w 5.5, I_o VII) Golgun earthquake (Berberian 1995; see Table 1 and fig. 3). P-waveform modeling of this earthquake (fig. 3, Table 1) indicated a right-lateral strike-slip mechanism with centroid depth located approximately at 7 km for this event (Baker et al. 1993).

Beginning in 2003, the Mamasani Archaeological Project excavated a sounding 2 m wide and of variable depth down the face of an exposed section on the northern side of the mound. This sounding was continued into the lowermost parts of the site as a 2×1 m trench in 2003 and 2007. A total of 31 stratified phases of occupation were revealed, dated by radiocarbon to the period from ca. 4,000 to 50 BC (Petrie et al. 2007 & 2009). Despite the excavator's best efforts, it was not possible to reach virgin soil. Thus it is likely that earlier deposits underlie those that have been exposed.

Tol-e Spid is located at the edge of a large colluvial fan (fig. 4) and the archaeological deposits continue at least 4 m below the present level of the plain (Roustāei et al. 2009; Petrie et al. 2006) (fig. 5). This clearly indicates that there has been considerable sedimentation around the site over time (Petrie et al. 2007). This is likely to have been a consequence of tectonic movements resulting in rapid uplift and erosion of the mountain belts and accelerated sedimentation in the subsided lowlands (Dasht-e Rostam-e Yek and Nurābād on the footwall of the Kāzerun fault), as well as climate change.

Limited alluvial aggradation data collected from the Zāgros (humid subtropical climate) and Central Iran (semi-arid to arid desert climate) indicate that active fault vicinity archaeological sites located on the footwall (subsiding fault block) show higher alluvial aggradation rates than the sites built farther away from the fault (Table 2). Both Tol-e Spid (in the Zāgros) and Sialk (in Central Iran) are located in the vicinity, and on the footwall, of active right-lateral strike-slip faults of Kāzerun and Kāshān, respectively. Despite variations in aggradation rate due to active tectonics and climate change, Tol-e Spid yields an average aggradation rate of 0.66 mm/yr for the last 6,000 years, whereas Sialk shows a slightly higher average rate of 0.82 mm/yr over the last 7,000 years (Table 2). This may also be due to another fact that the vertical drop along the Kāshān fault in arid climate has been higher than the one along the Kāzerun fault. We, therefore, anticipate that landscape of archaeological sites, located in the active fault zones, uplifting high mountains, and subsiding basins (Tol-e Spid, Tol-e Nurābād, and Sialk) are dominated by active tectonic movements rather than by environmental factors.

It is clear that the upper surface of Tol-e Spid has been heavily eroded and suffered extensive damage due to the activities of modern inhabitants and farmers. This has included the erection of mud-brick structures on the upper surface of the site during the 20th century; encroachment from fields

on the extremities of the site; and the removal of large parts of the site by a bulldozer or similar heavy equipment and used as fertilizer. Several erosion gullies and what appear to be E-W and N-S fractures are visible on the mound surface, and these appear to cut through the uppermost archaeological deposits dating to the 3rd, 2nd, and 1st millennia B.C. (Petrie et al. 2007: fig. 3). The fractures visible on the surface have not yet been investigated in detail. However, two distinct sets of off-fault fractures with general N-S (parallel to the Kāzerun fault) and E-W orientations cutting and vertically displacing two different levels of the 4th millennium BC archaeological deposits at the site have been detected (Petrie et al. 2007 & 2009).

Earthquake between Phases 23 and 22 (Lapui period; ca. 3850-3680 BC; the Lower Fracture)

The lowermost seven meters of archaeological deposits exposed in the Tol-e Spid sounding comprise 14 separate phases of occupation that span the period from ca. 4000 to 3100 BC (Table 3). This date range has been confirmed by a consistent series of 15 radiocarbon determinations (Petrie et al. 2009, in press). The north and west sections of this sounding (Petrie et al. 2007 & 2009) show two fractures (of secondary earthquake effect; not coseismic faulting) at a distance of 0.4-1.0 m from each other, which cut the archaeological deposits of Phases 31 (Early Lapui) through 23 (Early-Middle Lapui) and vertically displace the key strata for about 10-20 cm. The fractures were detectable from approximately 0.5 m above to at least 3 m below the present ground surface. The displaced layers show apparent reverse motion along a curving fracture dipping 10 degrees to the right (NE) and relatively upthrusting the strata to the south west. Depth of the fractured layers (phases 31 through 23) is about 3.2 m. Observation of the fractures at the north and the east sections of the sounding indicate two contemporaneous fractures striking in general N-S (on the north side of sounding) and E-W (on the east side) directions (figs. 5-6).

In the upper Phase 23 deposits and on top of the fracture on the east section of the sounding, a large boulder (25 × 30 cm) has fallen (possibly due to strong ground motion) and disturbed the surface deposits. A close examination of the brick wall layers to the right of the fracture and the boulder clearly shows the sheared and vertically displaced individual bricks (fig. 7). This may indicate that the Phase 23-22 earthquake was a large-magnitude event along the nearby Kāzerun fault.

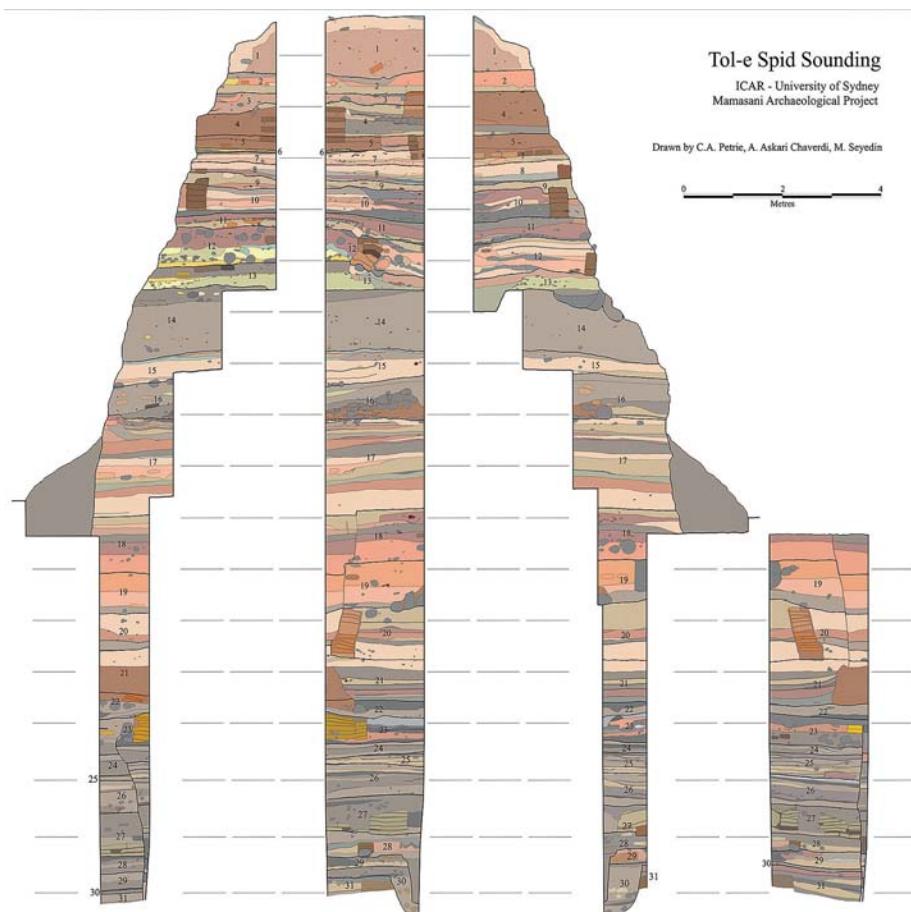


Fig. 5. Section through the 4th millennium BC deposits at Tol-e Spid showing the upper and lower fractures.

The fractures are covered by Phase 22 deposits; the time of the fracturing should be post-Phase 23 and pre-Phase 22 (Table 3, figs. 5-7). The radiocarbon dates from the 4th millennium BC sequence at Tol-e Spid include samples from Phases 23 and 22, and if all of the 4th millennium BC dates are modeled using the Bayesian analysis capabilities of the Ox-Cal radiocarbon calibration programme (v.4.1), there is a high statistical probability that the earthquake that took place between these two phases occurred ca. 3850-3680 BC. The fracturing and vertical displacement of



Fig. 6. Two earthquake lower fractures with apparent reverse motion upthrusting the left (north) and the right (east) blocks over the relatively lowered central segment at Tol-e Spid. Both fractures cut phase 23 (at the top; not shown in the photograph) and 31 (bottom, not shown here) (Photograph by Cameron Petrie).

archaeological phases, toppling of the boulder, and shearing of the brick layers were apparently formed during a strong ground motion created by a medium- to large-magnitude earthquake possibly along the nearby Kāzerun fault (fig. 3).

Phase 20 Tilted and Rebuilt Mudbrick Wall (ca. 3710-3510 BC)

A mud brick wall visible in Phase 20 (Terminal Lapui; ca. 3710-3510 BC) appears to have had its alignment changed at different levels and is tilted towards the west (fig. 5). The wall appears to have three separate subphases, a lower initial subphase (20c) and two subsequent rebuilding subphases (20b and 20a), with each being constructed from mud-bricks of different colours (Petrie et al. 2009). The uppermost parts of this wall were truncated, and the structures of Phase 19 were built directly above the



Fig. 7. East wall of sounding at Tol-e Spid showing the lower curved fracture with apparent reverse displacement cutting phase 23 (top with the fallen boulder) through phase 31 (bottom; not shown here). Note the collapsed boulder on top of fracture and the highly sheared and displaced brick layers of phase 23
(Photograph by Cameron Petrie).

truncated wall (Petrie et al. 2009: fig. 4.18). The reason for the tilting of the Phase 20 wall is unknown, but a wall on this alignment appears to have been built (Subphase 20c) and had associated occupation surfaces. This wall appears to have tilted, and there appears to have been two subsequent attempts to rebuild it with different coloured bricks (Subphases 20b and 20a). Phase 20 is the earliest structural phase that is cut by the fracture causing vertical displacement in Phases 20 through 18 (see below).

Earthquake between Phases 18 and 17 (ca. 3370-3030 BC; the Upper Fracture)

A fracture with apparent normal vertical displacement of the archaeological deposits of Phases 20 through 18 (Late Lapui, Transitional and - Bānesh; ca. 3370 – 3030 BC), showing evidence in disturbed structural remains was carefully mapped during the excavation (Table 3 and fig. 5). Observation of the fracture on the north and the south sections of the sounding shows the general N-S trend of the fracture; no fractures were detected on the east or the west sections of the sounding (fig. 5). Maximum displacement of 5-20 cm was measured and the fracture runs N-S across the sounding close to the E baulk, and partially follows the line of the east face of the Phase 20 wall (Petrie et al., 2009). The fracture, which is visible from 2-5 m above the present ground surface, is filled with very fine clay deposit similar to typical '*fault gouge*'.

Phase 18 sediments show the most disturbed horizon displaying differential subsidence, resulting in the deposits on at the east end of the sounding being vertically displaced about 5-15 cm lower than those at the west end (Table 3; fig. 5). The river-stone wall in Phase 19 shows signs of having been disturbed by both the subsequent occupation and was potentially affected by the earthquake fractures that also substantially disturbed the deposits of Phase 20 and 18 (Petrie et al. 2009). Maximum ground deformation (vertical displacement along the earthquake fracture in this case) is expected to develop at the upper surface levels during the earthquake (as was documented in Phases 18 and 19), and the amount of displacement decreases with depth, with minimum displacement observed in Phase 20 (fig. 5). Depth of the fractured layers (Phases 20 through 18) is about 3 m.

It is notable that the archaeological disturbance and fracturing do not affect the two meters of the ephemeral surfaces that comprise Phase 17 (Kaftari; ca. 2140-1880 BC) and the fracture is actually covered by the

lowermost of the Phase 17 deposits (Petrie et al. 2009) (Table 3; fig. 5). This suggests that strong ground motion associated with the earthquake deformation occurred during or sometime after Phase 18, but before the site was reoccupied during Phase 17 (Kaftari; ca. 2140-1880 BC). It is not yet possible to establish the precise date of fracturing, as the site appears to have undergone a 'protracted abandonment' after Phase 18 of between 900 and 1200 years. As such, it is not clear whether the strong ground motion caused by the Phase 18/17 earthquake destroyed the Phase 18 occupation at the site (ca. 3030 BC), or took place during the protracted period of site abandonment in the third millennium BC (Petrie et al. 2009).

It is probable that the earthquake led to the settlement withdrawing (if anybody survived) around ca. 3030 BC toward a more suitable location. We prefer this scenario, especially since we know that even during the early twentieth century medium-magnitude earthquakes in Iran (1923, 1933, 1939, and many more), survivors completely abandoned their villages permanently (see Ambraseys & Melville 1977 & 1982; Berberian 1979b). Evidence of archaeological site abandonment after large-magnitude earthquakes has already been documented by Wilkinson (1986) in the Vineyard and Sabz Pushān mounds of Neyshābur, as well as in the Sialk mounds (Berberian et al. 2012).

After the ca. 3030 BC Tol-e Spid earthquake and the site abandonment, the Phase 16 architectures show the utilization of a combination of large river stones with smaller ones placed in the interstices (Petrie et al., 2009), perhaps to reinforce the structure against strong ground motion.

Phases 12 and 11 (Early Achaemenid Period) Collapsed Structure and Steep Sloping Layers (ca. 800-400 BC?)

Higher up in the same sounding, there is also evidence for a collapsed mud-brick structure dating to the Achaemenid period (Phase 12; Table 3, fig. 5). The collapsed Achaemenid mud-brick structure and several associated deposits slope steeply from the east to the west. The sequence shows a kink in stratigraphic layers (fig. 5). The lower phase 12 deposits cut the top of phase 13 layers. Some fractures are observed near the trench wall (cutting the right trench wall above the Phase 11 pebble pavement) but its origin is not clear. One of the fractures dips against the slope of the mound and may not be related to slope failure.

The reasons for the slumping of the wall and tilting the phase 12-11 deposits are unclear. The southern end of the wall was built above a pit, so

the wall may have subsided into the pit, or was potentially subjected to an earthquake. The overlying deposits of Phase 11 appear to have been deliberately laid down on the sloping surface caused by the collapse of this wall. The overlying phase 10 does not show sloping sediments. The one radiocarbon date from Phase 12 spans from ca. 800-400 BC, but this period is notorious for the presence of a large plateau in the calibration curve that results in imprecise dates. This date range broadly corresponds with the ca. 400-200 BC Phase Iii earthquake with initial collapse of the Achaemenid portico at the site of Qal'eh Kāli located 2.5 km to the SW of Tol-e Spid (fig. 4; discussed below).

As mentioned earlier, except for the 2001 small-magnitude earthquake which took place north of Tol-e Spid, the post-1824 recorded seismicity of the northern section of the central Kāzerun fault (from Nurābād to Yāsuj) has been relatively quiet during this period, whereas, archaeoseismic data reviewed here clearly indicate a higher activity of this section of the fault during ca. 3850 to 3030 BC (Tables 1 and 3).

The two sets of fractures (with maximum vertical displacement and disturbance at the top stratigraphic phases of 23 and 18) observed at Tol-e Spid displacing cultural layers at two different levels (Table 3, fig. 5-7) indicate strong ground motions with approximate 700-800 years interval (average $735 \pm ?$; based on only two events which would be hardly conclusive) created by medium- ($6.0 > M > 6.9$) to large-magnitude ($M > 7.0$) earthquakes along the Kāzerun fault. The only other site along the Kāzerun fault that has been shown to have contemporaneous occupation through excavation has not yet shown similar clear evidence (Tol-e Nurābād – see below). This makes it impossible to estimate the extent of the epicentral area and the seismic parameters of these two archaeoseismic events.

Regression analysis (Wells & Coppersmith, 1994) indicates that the 80 km long Kāzerun fault section north of the fault bend (fig. 3) is capable of creating earthquakes of $\sim M_w$ 7.3 with maximum and average right-lateral displacement of ~ 3.08 m and ~ 1.78 m, respectively. Assuming the slip rate of 3.6-3.9 mm/yr along the fault (addressed earlier), we expect an earthquake of M_w 7.3 to have a return period of ~ 789 -855 yr (considering average and maximum fault displacement values), which is close to the number reached above (average $735 \pm ?$). Therefore, despite shortcomings associated with a single return period value, we may assume that the magnitude of the two archaeoseismic events at Tol-e Spid was around 7.3.

Furthermore, finding evidence of only two archaeoseismic events during the 4,000 years life span of Tol-e Spid along the Kāzerun fault is not compatible with the slip rate of the fault and expected maximum credible earthquake discussed earlier. There should be at least five ~ 7.3 magnitude (and many more medium-magnitude) earthquakes happening during such a long period of occupation which possibly were overlooked. Further detailed excavations should reveal more archaeoseismic events at Tol-e Spid and the adjacent archaeological sites.

The Gurāb Spring Water Course Change

The Gurāb spring is located about 2 km to the NE of Tol-e Spid and flows in a westerly direction towards the Tol-e Spid mound (Petrie et al. 2009). After passing the Kāzerun fault zone, the stream course makes a northward sinus bend (a possible right-lateral diversion) and then continues towards the southwest, passing to the south of the mound (fig. 8). Petrie et al. (2009) thought that the spring might have been the primary source of water for the inhabitants of Tol-e Spid and for some unknown reason during the past the spring stream has been diverted.

Except for the small diversion of the stream passing the fault, the stream does not mimic the diversion pattern of the Fahliān and the Dorughzan Rivers, which are right-laterally diverted for about 6 and 9 km, respectively (figs. 3 and 8). Either the spring is much younger than the Fahliān and Dorughzan Rivers or as Petrie et al. (2009) suggested the diversion towards the SW could be due to the growth of the active alluvial fan of Bāb-e Meidān. It is also possible that the spring water course was manually corrected after deformation caused by earthquakes. Further research with detailed mapping of the stream is required to separate the fault movement and fan growth rate effects on the stream course (Barker 2012).

III.2 Tol-e Nurābād [*The Nurābād mound*]

Tol-e Nurābād ($30^{\circ}07'17.21''\text{N}$ - $51^{\circ}31'63''\text{E}$, +947.3 m) is located about 13 km to the SSE of Tol-e Spid, and 2.5 km to the west of the Kāzerun active fault (figs. 3 and 4). The site is also located to the north of the Dorughzan River, which has been right-laterally diverted about 9 km along the Kāzerun fault (fig. 3). The Tol-e Nurābād mound underwent an intensity of VI during the 1986.07.12 (M_w 5.5, I_o VII) Golgun earthquake (Berberian 1995; fig. 3, Table 1).

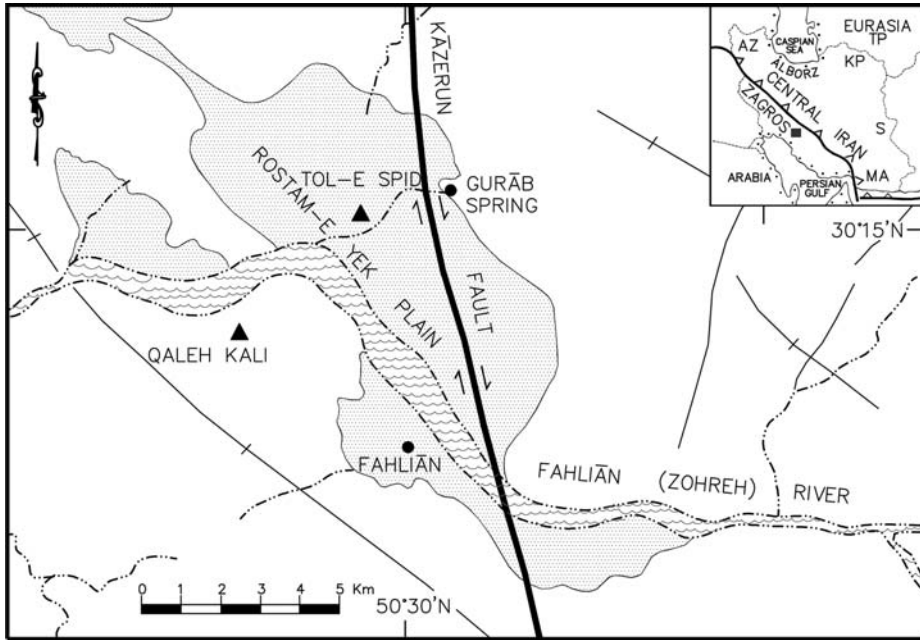


Fig. 8. Close up view of the location of Tol-e Spid on the Rostam-eYek plain showing the ~6 km right-lateral diversion of the Fahliān River course and slight northward diversion of the Gurāb Spring stream (adapted from Potts et al. 2009: Plate 3) passing the Kāzerun fault north of the town of Fahliān. The Tol-e Spid and the Qal'eh Kali mounds are marked by filled triangles. Fold axes are shown by thin lines with a single bar in the middle.

Excavations in Tol-e Nurābād Trench A (Phases A27 through A1) showed cultural layers from the Neolithic (late 7th millennium BC) to post-Kaftari (ca. 1400 BC) with gaps at A27/A26 (Neolithic), A18/A19 (Shamsābād), and A6/A5 (Late Bānesh to Late Kaftari) (Weeks et al., 2009; fig. 9). Trench B revealed occupation from Middle Elamite (B6; ca. 1200 BC) through post-Achaemenid (B1) (Weeks et al., 2009). More recent excavations have been carried out in Trench C (Early Bākun to Bānesh) and Trench D (Neolithic).

Apparently, occupation at Tol-e Nurābād commenced after the 8.2 ka climatic event (6200 BC), which was characterized by a prolonged drought/cool period well-recorded over most of the Northern Hemisphere (Rohling and Pälike 2005; Ebbesen et al. 2008; Fleitmann et al. 2007). It has been shown that the 8.2 ka event correlates with major cultural changes in several archaeological sites, e.g. in the Near East and Europe (Staubwasser & Weiss 2006; Gronenborn 2009; Akkermans et al., 2010).

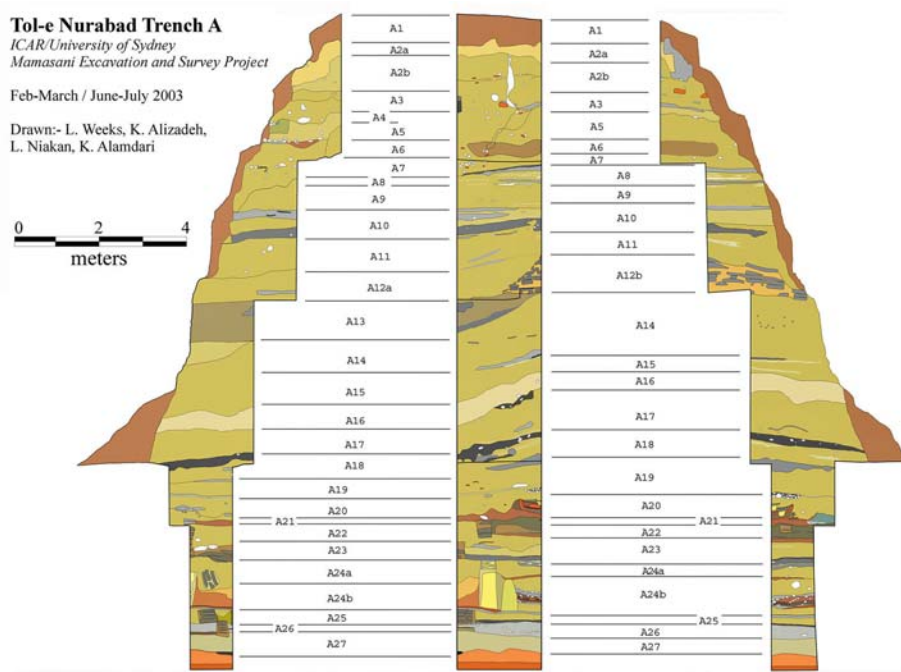


Fig. 9. Section of Trench A at Tol-e Nurābād showing phases.

Strongly Sloped Phases A18 through A13 (ca. 4400-3800 BC)

Notable tilting of the Early Bākun (Phase A18) to Early Lapui (Phase A13) archaeological deposits has been documented on the south face of the Trench A (Weeks et al., 2009). The deposits slope strongly from the WSW to the ENE (fig. 9). Phase A19 deposits are capped with a slopping burnt layer, and disconformably covered by Phase A18 (Bākun). The tilted horizons of Phases A18 to A13 are covered by almost horizontal to slightly slopping Phase A12b and A12a (Lapui) with disconformity. There is also a disconformity between Phase A12b and the overlying Phase A12a with distinct disconformity in the south section sounding (fig. 9; Weeks et al., 2009). Whether the tilting is natural topography of the mound or a result of strong ground motion and settlement is not known. Several fractures cut the phases A 18 through A 13 but their nature and timing has not been constrained.

Absence of the Post-Bānesh/Pre-Kaftari (post-3030 BC) Seismic Indicators at Tol-e Nurābād Limited Sounding

No evidence for the Tol-e Spid post-Bānesh/pre-Kaftari earthquake (ca. post-3030) has yet been documented in limited excavation at Tol-e Nurābād (Weeks et al. 2009), even though it is located only 13 km to the southeast of Tol-e Spid (fig. 3, 4 and 9). This could either be due to: (i) the long lasting discontinuity in occupation from Late Bānesh to the Late Kaftari (A6/A5; ca. 2800-1800 BC) at Tol-e Nurābād, or (ii) the limited trench size. It is not plausible that the strong archaeoseismic event documented at Tol-e Spid did not affect Tol-e Nurābād, but thus far nothing has been revealed. However, the most recent phase of excavations in Trench D has revealed a number of occupation deposits that are clearly sloped. There are no other contemporaneous sites in the area that have been excavated to help constrain the meizoseismal area of the Tol-e Spid 18/17 phase earthquake (ca. 3030 BC) and its seismic parameters.

Although the cause of commencement of the A6/A5 prolonged hiatus is not known at Tol-e Nurābād, the latter part of the hiatus was concurrent with the prolonged 4.2 ka aridification (ca. 2200-1700 BC) elsewhere in the Near East (Weiss 2000). It is plausible that this abrupt climate change accounts for the protracted hiatus in settlement at Tol-e Nurābād. The 4.2 ka event has been detected in numerous palaeo-records across the Northern Hemisphere (Booth et al. 2005).

III.3. *Qal'eh Kāli (MS 46; Jenjun; Jenjān; Seorun; Sarvān) Achaemenid Royal Pavilion*

The archaeological site known as Qal'eh Kāli is located about 2.5 km to the southwest of Tol-e Spid and 3.5 km to the west of the Kāzerun active fault (figs. 3-4). Archaeological excavation of an Achaemenid period stone portico (a stone pavement and associated column bases) and related mudbrick structure remains has revealed six sub-phases (Potts et al. 2009; Table 4). The stone portico has a WNW-ESE orientation and the southern extent of the stone pavement is bordered by a parapet made from solid standing cut stone blocks. The stone pavers, column bases and parapet were constructed upon a thickly packed, stony fill, with a shallow layer of medium, sub-angular stones directly below the level of the pavers, and, and a thicker, stony fill composed of small stones underlying it (Potts et al.

2009). The detailed foundation preparation for the Achaemenid structure is an important indigenous hazard mitigation endeavor.

Phase II (ca. 400-200 BC) Post-Achaemenid Earthquake at Qal'eh Kāli

Large-scale collapse of the Achaemenid structure has been identified during Phase II, after which the site was apparently abandoned for a time (Table 4). Widespread strong ground motion indicators were observed throughout the site: (i) Many of the parapet cut stones were badly fractured, displaced and tilted; (ii) several parapet stones had toppled to the south; (iii) two of the four column bases show evidence of substantial cracking; (iv) several of the large stone pavers were also fractured, broken and show uneven settlement and pop-up like deformation due to strong ground motion; (v) back-tilting towards the north of the upper stone tread on the central stone staircase was also detected where the surface of the portico pavers is several centimetres higher than the upper tread (see photographs in Potts et al. 2009; fig. 10a-10c).

A number of stone architectural elements such as merlons, torus fragments and rectangular beams with keyhole shaped clamp cuttings (originally filled with iron and/or lead), as well as a large number of disarticulated mud bricks were found within the fill beyond the parapet to the south of the portico. The jumbled positioning of the masonry elements as found (fig. 10c), suggests that they may have fallen with some force from the portico. Some of the fallen rectangular beams were fractured. Several of the stone merlons, which were originally either mounted along the top of the walls of the mudbrick superstructure of the building or more likely, mounted on top of the parapet, fell first and were then covered by parts of the fallen parapet (fig. 10a, 10c).

To the south of the parapet the large scale structural collapse of the Achaemenid portico was covered by a thick accumulation deposit (Phase III; Table 4), eventually raising the ground level to the height of the pavement. It is likely that the pavement was then reused and incorporated into a structure of 'buttress' wall foundations found to the north of the portico in the excavation season of 2009 (Phase III: c. 200-50 BC; Table 4). The upturned Achaemenid bell-shaped column base (see Pl. III in Potts 2012), if not displaced by human or flood, may indicate a peak ground acceleration (PGA) of $>1\text{'g'}$ (Earth's gravity force; $g = 9.81\text{ cm/s}^2 = 981\text{ Gal}$).



Fig. 10. Archaeoseismic indicators on the western side of the exposed stone architecture at Qal'eh Kāli, a. collapsing parapet looking north, b. tilted pavement adjacent to central set of stairs looking north, c. collapsed parapet and scattered stone elements looking north-west. Each image shows evidence for substantial disturbance to the structure, including the collapse and dislocation of individual and groups of elements, including substantial paving slabs.

Right-lateral motion along the nearly N-S Kāzerun fault (fig. 3) can topple the free-standing structures and objects to the general N-S direction. In the twentieth century the Qal'eh Kāli mound underwent an intensity of V (MMI) during the 1986.07.12 (M_w 5.5, I_o VII) Golgun earthquake (Berberian 1995) (Table 1, fig. 3).

The closest site to the Qal'eh Kāli mound with excavated Achaemenid/post-Achaemenid cultural layers is Tol-e Spid, which has signs of collapsing structures in Phase 12 (ca. 800-400 BC; discussed earlier). It is notable however, that no strong ground motion indicators have yet been documented in the narrow trench excavations of Phases B5b (early Achaemenid) through B1 (post-Achaemenid) at Tol-e Nurābād. The evidence for the damage to the Achaemenid phase structure at Qal'eh Kāli is unequivocal, and could potentially have taken place sometime after the Achaemenid period.

About 17.5 km to the SSE of Qal'eh Kāli, there are Achaemenid structural remains, such as column bases, at Tal-e Gachgareān (Mehryār 1379/2000). The mound is located in the vicinity of the Kāzerun fault and the Achaemenid/present road. It is probable that the ca. 400-200 BC Qal'eh Kāli earthquake also destroyed structures at Tol-e Spid as well as Tal-e Gachgaerān. Further research is required to see if that was the case.

It should be mentioned that the use of iron and/or lead clamps at Qal'eh Kāli, Persepolis and Pasargadae, is interesting since the ductile properties of the iron fasteners in lead add to the resilience of the structural element during strong ground motion (Cooper 2008). The Achaemenid builders seem to have had knowledge of strong ground motion and resilience of structures in earthquake prone areas by construction of proper foundation material (mentioned above) for the heavy masonry structure and utilizing metal clamps preventing horizontal thrust.

Phase IV (ca. 100 BC?) Second phase of collapse at Qal'eh Kāli

Following the period of Post Achaemenid reuse of the pavement and rebuilding at the site, it is likely that the second phase of large-scale structural collapse occurred (Potts et al. 2009). Across the site the second phase of structural collapse was characterized by the presence of a thick deposit of reddish, largely melted, mudbrick (Phase IV; Table 4). The melted mudbrick covered the pavement and appears to have originated from the

collapse of the remnant mudbrick superstructure of the original Achaemenid building. The cause of collapse is not known yet.

Phase VI (1935-1959) Collapse of the Pre-modern Qal'eh Kāli Village (the 1946 Earthquake damage)

The cause of destruction of the mid-20th century Qal'eh Kāli village (Phase VI; Table 4), which was dated by Potts et al. (2009) sometime between 1935 (Stein 1940) and 1959 (Atarashi and Horiuchi 1963) is not known. During this time frame there were documented earthquakes in the Kāzerun region in 1942 (two), 1946, and 1948 (Table 1). The 1946.03.12 M_s 5.7 earthquake, which was the strongest, damaged buildings in Kāzerun and a few people were buried under the ruins in the town. Some walls cracked at Bushehr (located 104 km to the SW) and the shock was strongly felt at Shirāz (86 km to the east of Kāzerun) and Marvdasht (Irān-e Mā, 1324.12.23; Etela'aāt 1324.12.22 & 23; Bozorgniā 1962; Nabavi 1972; 1977; Ambraseys & Melville 1982). Instrumental epicenter of this event, with unknown location error, is located about 11 km to the west of Bishāpur and 7.5 km to the west of the Kāzerun fault (about 27.5 km NW of Kāzerun). If the 1946 M_s 5.7 earthquake could damage buildings at Bushehr about 104 km to the SW of Kāzerun, it should have been even more intense at Qal'eh Kāli, which is located about 70 km to the NNW of Kāzerun and 48 km to the north of the instrumentally located epicenter. Unfortunately no oral historical information was recorded in contemporaneous newspapers. However, we prefer this scenario based on the large damage zone of the 1946 earthquake.

III.4. *Sasanid Naubandégān and the Mil-e Ezhdehā (Dimi Mil) tower (Nurābād)*

The two Sasanid (AD 224-642) sites of Naubandégān and Mil-e Ezhdehā are also located in the Nurābād area and show some indication of destruction, the cause of which has not yet been investigated.

The ruins of the Sasanid town of Naubandégān (Naubandjān in Arabic), one of the late Sasanid-early Islamic period towns in Fārs province, are located in Nurābād behind the office of the mayor, 2.5 km SE of Tol-e Nurābād (Ibn al-Balkhi 504/1110; Mitchiner 1977; Miri 2009). The exact time and cause of destruction of this late Sasanid-early Islamic town,

located near the Kāzerun fault, have not been investigated. We mention it here in the hope these issues will be included in future projects.

The Sasanid cut-stone masonry tower of Mil-e Ezhdehā (lit. ‘Dragon’s Tower’ in Persian; Dimi Mil) (Ghirshman 1944/45; Mostafavi 1343/1964; Meshkāti 1349/1970; Huff 1975) is located about 6 km to the WSW of Tol-e Nurābād and 7.5 km to the west of the Kāzerun fault (30°06’N-51°27’E, +927 m). The structure is dated by Huff (1975) to the second half of the third century AD. Pre-renovation photographs of this tower clearly shows: (i) collapse of the upper parts of the tower; (ii) development of deep vertical fractures cutting the entire tower; (iii) shifted and displaced cut stone blocks at the corners and on the four side walls; and (iv) enlargement of the vertical joints between stone blocks due to horizontal thrust. The tower is also slightly tilted and rotated. This clearly indicates a post-second half of the third century AD strong ground motion effects on this free-standing structure. The exact time of this event is not known and it is probable that destruction of town of Naubandégān and damage of the Mil-e Ezhdehā took place during a single event. The known regional Sasanid and Islamic period earthquakes that we are aware of are the ca. 293-303, ca. 531-590, ca. 713-762, and ca. 12th century Bishāpur earthquakes, which took place about 40 km to the SSE of Mil-e Ezhdehā (see below).

III.5. *The Sasanid (AD 244-266) Royal City of Bishāpur*

The splendid royal city of Bishāpur [‘*Bay-Shāpur*’, lit., ‘Lord Shāpur’; later ‘*Veh-Shāpur*’, lit., ‘the Good Shāpur’ or ‘the Excellence of Shāpur’] was built by Shāpur-I (r. AD 242-270), son of Ardashir, six years after his triumph over the Roman Emperor Valerian, in AD 266 (Ghirshman 1956, 1971; Tafazzoli 1368/1989; Daryāee 2002). The city is located about 2.5 km to the east of the Kāzerun active fault and 19 km to the NNW of modern Kāzerun. It is also situated about 38 km to the SSE of Tol-e Nurābād, and about 52 km to the SSE of the Tol-e Spid/Qal’eh Kāli mounds (fig. 3-4). The city covers an area of about 155 hectares (1.55 km²) of which less than one half- hectare has so far been randomly investigated.

Bishāpur was the main residence of Shāpur I in the district of Shāpur Khurrah of the Fārs province. It has a rectangular plan and is laid against the Shāpur Mountain. The royal city was composed of two quarters, the citadel to the NE and the city to the SW. The enormous city wall was articulated by an evenly spaced series of round towers. A number of stone

reliefs are located at a short distance from the Bishāpur city at Tang-e Chowgān [lit., ‘Gorge of Polo’] to the NE, and on the banks of the Shāpur River dating from Shāpur I (AD 254) to Shāpur II (r. AD 309-379). The Qal’eh Dokhtar fortress is located at the top of the mountain overlooking the citadel and the city, which was in turn surrounded by a fortification wall (Salles & Ghirshman 1938; Ghirshman 1938, 1939b, 1945, 1951, 1956, 1971; Matheson 1972, 1976; Sarfarāz 1987; Keall 1989; Miri 2009; Overlaet 2009).

Based on excavations of four floors constructed at different levels covered with debris, broken pieces of stucco, coins, and additional buttresses behind the walls over the mosaic floor, especially in the Mosaic Hall, Ghirshman (1956, 1971) identified three major structural phases during the Sassanid era (AD 224-636), and added that one of the destruction phases might have been caused ‘*by an event or abandonment*’. Many of the buildings in Bishāpur were reconstructed, and the outer face of the city wall underwent changes which included the removal of one tower in every three. The three major renovation phases represent: (i) renovations during the reign of Shāpur II (r. AD 309-379); (ii) renovations prior to the reign of Khosrau II (before AD 591); and (iii) renovations in the Late Sassanid period (AD 628-636) (Table 5).

The city was an important seat of the Sasanid kings from the reign of Shāpur I (AD 242-270) to Narseh (r. AD 292-302). Although the city was still functioning (stone reliefs sculptured up to the reign of Shāpur II: AD 309-379), it was later longer the seat of the Sasanid kings. The royal city of Bishāpur maintained its importance until it was invaded and vandalized by the Moslem Arabs about AD 637; it soon lost its former glory and importance and began to decline (Table 5).

The site of Bishāpur underwent an intensity of ~VIII during the 1824.07.02 (I_o ~VIII, M_s ~>6.0) Bishāpur earthquake (fig. 3, Tables 1 and 5). The earthquake damaged the towns of Kāzerun (150 killed), and Borāzjān, located about 58 km to the SW (Alexander 1827; Chirikoff 1875; Fasā’i 1313/1895; Ambraseys & Melville 1982; Berberian 1994, 1995). Eighteen years before the earthquake while visiting the ruins of Bishāpur in 1809 and 1811, Morier (1812, 1818) noticed there were still four capitals with bull protomes on top of the northwestern wall of the Anāhitā Temple. In 1932, when Ghirshman (1956, 1971) visited the site, only two capitals with bull protomes were sitting on top of the wall. It seems that the two capitals toppled during the 1824 Bishāpur earthquake.

At present the Sasanid royal city of Bishāpur looks like a stoney wilderness of ruins with remains of cut stone walls half-buried in the fallen debris, as if the city was destroyed by a series of heavy bombardments. The chaotic positioning of the masonry elements of the collapsed structures and millions of stone blocks throughout the site, clearly suggests that the area was subjected to strong ground motion phases created by destructive earthquakes (as well as invasion and vandalism) long before the 1824 event. The structures and walls of the two adjacent Sasanid fortresses (Qal'eh Dokhtar and Qal'eh Pesar/Korr) on top of the Shāpur Mountain have also been completely devastated. Furthermore, the destroyed Sasanid Gabri (Zoroastrian) Bridge on both banks of the Shāpur River at the western city border might have been destroyed by earthquakes and/or torrential flooding of the river.

Although the limited and preliminary original investigations from the 1930s throughout the 2000s were not targeted toward archaeoseismicity, numerous strong ground motion indicators have been detected by scrutinizing the original archaeological reports and historic photographs taken during the excavations, as well as site visits. There were at least four possible major phases of destruction with some uncertainty concerning the exact dates and causes (Table 5).

While the Cultural Heritage, Tourism, and Handicraft Organization (CHTHO) of Iran applied for registration of Bishāpur city on UNESCO's World Heritage List, the site and the monuments have been neglected by CHTHO and the higher authorities for the last three decades (mehrnews.ir; payvand.com/news, April 18, 2012). On May 20, 2012 the whole site was deliberately set on fire by anonymous people who were never apprehended (<http://sepidedam.org/?p=204>).

Damage to the Cruciform Palace of Shāpur's Audience Hall; the ca. 293-303 Bishāpur Event (?)

The large cruciform-shaped rubble and plaster structure known as Shāpur's Audience Hall (the Cruciform Palace), now open to the sky, originally consisted of a central chamber over 22 square meters, which was surrounded by four triple-vaulted ayvāns and very thick walls. Ghirshman (1956, 1971) followed by Sarfarāz (1987), Pirniā (1382/2003), and Amiri (1388/2009) mentioned that the vaulted ayvāns with six-meter thick walls supported a ~20-25 m high cupola over the central chamber covering over

a ca. 22 square meter court with stuccoed and painted niches. However, later Godard (1965) followed by Keall (1989) took the view that the building was an open four-ayvān structure. Nonetheless, the heavy infrastructure of the Cruciform Palace of Shāpur's Audience Hall may indicate that it was required for construction and support of a high, heavy cupola over the central chamber.

Apparently, almost three decades after its construction, the cupola was cracked or collapsed (possibly by an earthquake) to the extent that it became necessary to support it with 'two symmetrical buttresses' on both sides of the entrance to the hall; this was presumably carried out towards the end of the reign of Narseh (r. AD 293-303), son of Shāpur I. 'Ali Akbar Sarfarāz (personal communication, January 1994) stated that the cupola collapsed due to an earthquake; however, the earthquake did not destroy or seriously damage the nearby subterranean Anāhitā Temple. After the first major renovations (ca. AD 309-379; Ghirshman 1956) the Hall was reused again (Table 5). Sarfarāz never published his data; we contacted him by telephone on September 19, 2012, but he was sick in bed and could not discuss the issues. The pre-excavation photographs of the Audience Hall (the Cruciform Palace), show the broken and vertically displaced cut stone blocks with widely opened vertical joints between stone blocks due to large horizontal thrust (see Plate 40a in Ghirshman 1971). It is not clear which of the earthquakes discussed in this paper caused the latter deformations.

We also know that during the first major phase of reconstruction (Table 5) in the reign of Shāpur II (r. AD 309-379) many of the buildings at Bishāpur were transformed, including the outer face of the nine meter thick city wall, when in each series of three towers, one tower was removed (Sarfarāz 1970; Ghirshman 1956, 1971). During this phase another monument (with a central ayvān with two wings and two corridors) was built beside the Shāpur River about 10 m from the perimeter wall (Sarfarāz 1970; Yāsi 1971).

Although the ca. 293-303 event prior to the first renovation phase (Table 5) is not properly documented or constrained and the subterranean Anāhitā Temple was not seriously damaged, it is tempting, for example, to see that (i) a distant earthquake originating on the northern section of the Kāzerun fault (similar to the ca. 400-200 BC Post-Achaemenid Earthquake at Qal'eh Kālī, with possible damaging effects at Tol-e Spid and Tal-e Gachareān, discussed above); (ii) a medium-magnitude earthquake along

the souther fault section; or (iii) an off Kāzerun fault earthquake on the nearby longitudinal reverse faults, had a damaging effect on the Bishāpur Copula. Whether or not this was the effect of a distant earthquake remains a matter for speculation until further careful investigation is carried out.

Excavations by Ghirshman (1956) evidently showed that the Cruciform Palace of Shāpur's Audience Hall was in ruins during the Umayyad period (AD 660-750), and the masonry building material from this already ruined structure was used in the Umayyad period structures at Bishāpur (coin # 2 dated 80/699 was found in debris). This may indicate that the structures built by Shāpur I were damaged by at least two earthquakes (ca. AD 293-303 & ca. AD 531-590) between AD 266 and 660 (Table 5; see below).

Destruction of the Bishāpur Anāhitā Temple; the ca. 531-590 Bishāpur Event

The subterranean Anāhitā Temple ('Fire Temple' in Ghirshman 1956; 1971), located to the immediate NW of the Cruciform Palace of Shāpur's Hall of Audience in the Citadel quarter of Bishāpur, is a rubble stone masonry structure faced with cut stone blocks and roofed with beams carved on capitals with bull protomes. A water channel from the Shāpur River leads to this structure (Ghirshman 1956; 1971; Sarfarāz 1987). The Temple had collapsed long before James Edward Alexander (1827) visited the ruins of the site on June 14, 1826 reporting the remains of enormously thick walls in Bishāpur's Citadel, and Roman Ghirshman's five season excavations in 1935, 1936, and 1938-1941.

Based on coins discovered in the Anāhitā Temple, Sarfarāz (personal communication, January 1994) believed that the Temple survived the first earthquake (ca. AD 293-303, mentioned above), but was destroyed during the second earthquake and the accompanying river flooding which took place sometime during the reign of Khosrau I (r. AD 531-579) and/or Khosrau II (r. AD 591-628; coins # 3 & 1 dated AD 622 and AD 625 found in debris; Walker 1956; Ghirshman 1956). Ghirshman (1956) noticed that the Triple Ayyvāns with the mosaic floor Hall, adjacent to the eastern wall of the Cruciform Palace, were carefully and deliberately covered over in the late Sasanian period and also partly damaged when a new wall with openings (the supposed back wall of the central ayyvān) was cut into it. This was dated to the late 6th century or early 7th century, because of coins of Khosrau II (AD 591-628) dated AD 622 and AD 625 in debris

above the floor (Walker 1956; Ghirshman 1971; Kröger 1982; Keall 1989). Since the renovations related to the Phase II floor in the Mosaic Hall are dated pre-591, we provisionally bracket the upper date of the event in the year AD 590 (Table 5).

Careful scrutiny of the invaluable hitherto, overlooked historic photograph taken by Ghirshman (1951) during his intermittent excavations between 1935 and 1941 (fig. 11) reveals rows of large and heavy cut stone blocks forming the southeastern wall of the putative Anāhitā Temple that were ‘*draped/folded*’ above the entrance vault due to severe differential settlement caused by a strong earthquake (Berberian 1994) during which the roof, the capitals with bull protomes, upper walls and the columns collapsed (fig. 12). Furthermore, on this precious photograph



Fig. 11. Invaluable pre-reconstruction historic photograph of the Anāhitā Temple in the Sasanid royal city of Bishāpur (Ghirshman 1951). Folding of the original large stone blocks forming the southeastern wall of the Anāhitā Temple (located to the northwest of the Shāpur’s Hall of Audience) draping above the entrance way arch due to strong ground motion-induced differential settlement caused by an earthquake in 531-579. Also note the counter-clockwise rotational shift of the first top stone block to the right-, and the two top stone blocks to the left-side walls of the entrance staircase in foreground during dynamic earthquake excitation. Most of the structural elements collapsed. The vertical joints between cut stone blocks are enlarged due to horizontal thrust. Looking to the NW (322°). The length of the wall is approximately 18 m. Due to reconstruction, the draping of the wall and the block rotations can no longer be seen at the site.

'counter-clockwise rotational shift' can also be detected at the first top remaining cut stone block to the NE (right-side), and the two top stone blocks to the SW (left-side) walls of the entrance staircase during dynamic earthquake excitation (fig. 11).

Strong deformational features such as: (i) uneven settlement of the foundation; (ii) the draped rows of the cut stone wall block rows; (iii) counter-clockwise rotational shift of the heavy cut stone blocks above the entrance walls along the stairs (fig. 11); (iv) displaced cut stone blocks of the inclined vault above the stairs (fig. 12); (v) ejected heavy cut stone blocks on the wall surfaces (fig. 13); (vi) displacement of the floor heavy stones and pop-up like deformation of large stone pavers (fig. 14); (vii) fractured and sheared entrance cut stone blocks (fig. 15 & 16); (viii) uneven large opening of the vertical stone wall joints due to horizontal thrust; and (viii) failure, collapse, and breakdown of almost all walls and columns of the Anāhitā Temple strongly indicate effects of strong ground motion during a strong earthquake along the nearby Kāzerun fault (Berberian 1994, 1997, 1998). Only maximum three meters of the original high nine meter-thick city wall with rounded towers (7.5 m in diameter) stands today.

Displaced, draped, and toppled rows of the large and heavy cut stone horseshoe-shaped periphery wall observed in the nearby Sarāb-e Dokhtarun Spring (located 800 m to the SE of the Anāhitā Temple; see Figure 19 in Mehryār 1379/2000), together with the complete collapse of all the structural elements of the nearby fortresses of Qal'eh Dokhtar and Qal'eh Pesar are additional supporting indicators of a strong earthquake.

The toppling date of the upper drums of the pair of columns forming part of a commemorative monument located in the center of Bishāpur has not been determined. Remains of the lower sections of the two columns were covered by 13th-14th century structures (see Plate 40b in Ghirshman 1971).

Destruction of the Triple Ayvān Buildings (with Mosaic Hall and Stucco Decorations); the ca. AD 531-590 and ca. AD 713-762 Bishāpur Events (?)

This court with elaborate mosaics is located to the immediate east of the Cruciform Palace of Shāpur's Audience Hall. Ghirshman (1956, 1971) recognized 'four major renovation phases' in this complex with four different floor levels constructed: (i) during the reign of Shāpur II (r. AD 309-379);

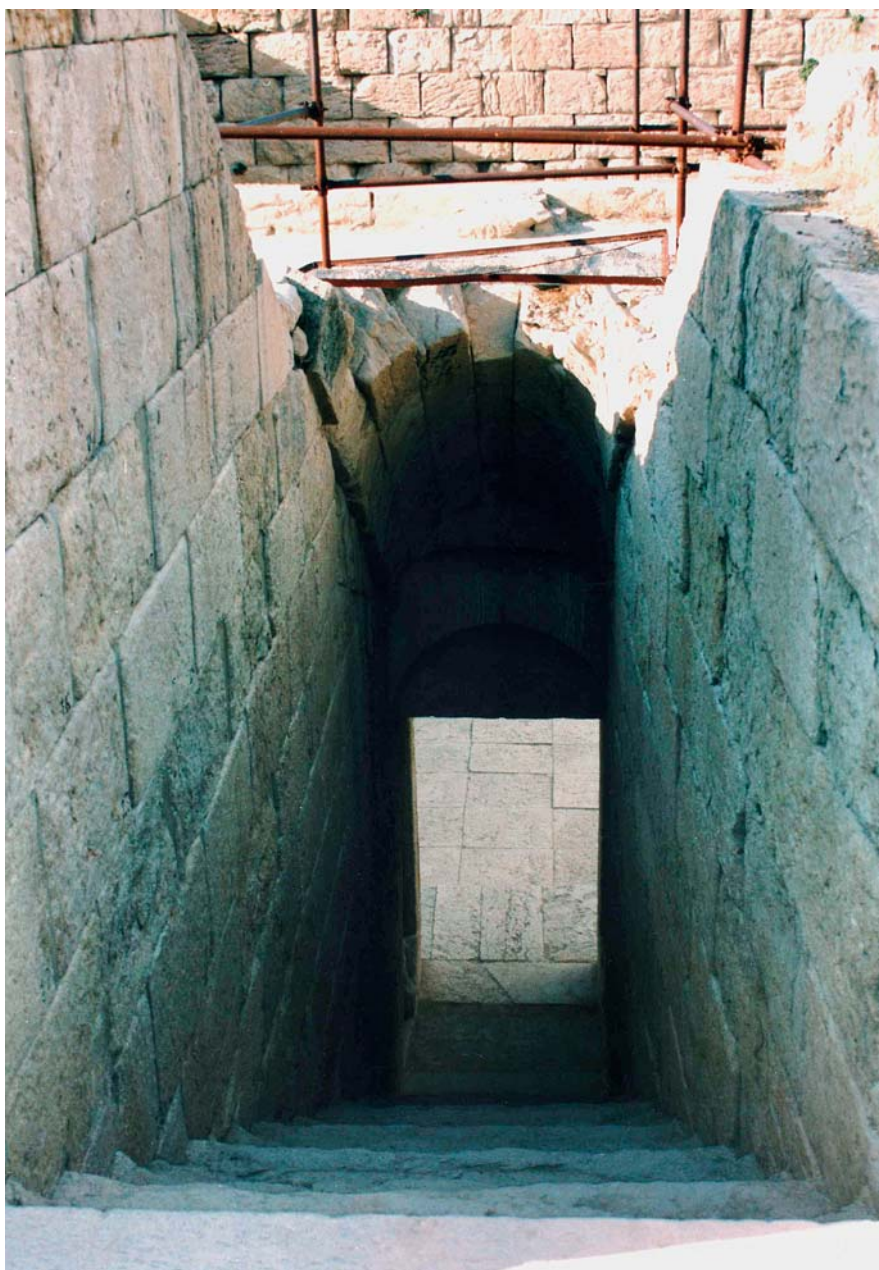


Fig. 12. Displaced and deformed cut stone blocks of the inclined vault above the southeastern entrance staircase due to strong ground shaking at the Anāhitā Temple of Bishāpur, destroyed by the AD 531-579 earthquake. Looking to the NW (December 1996).

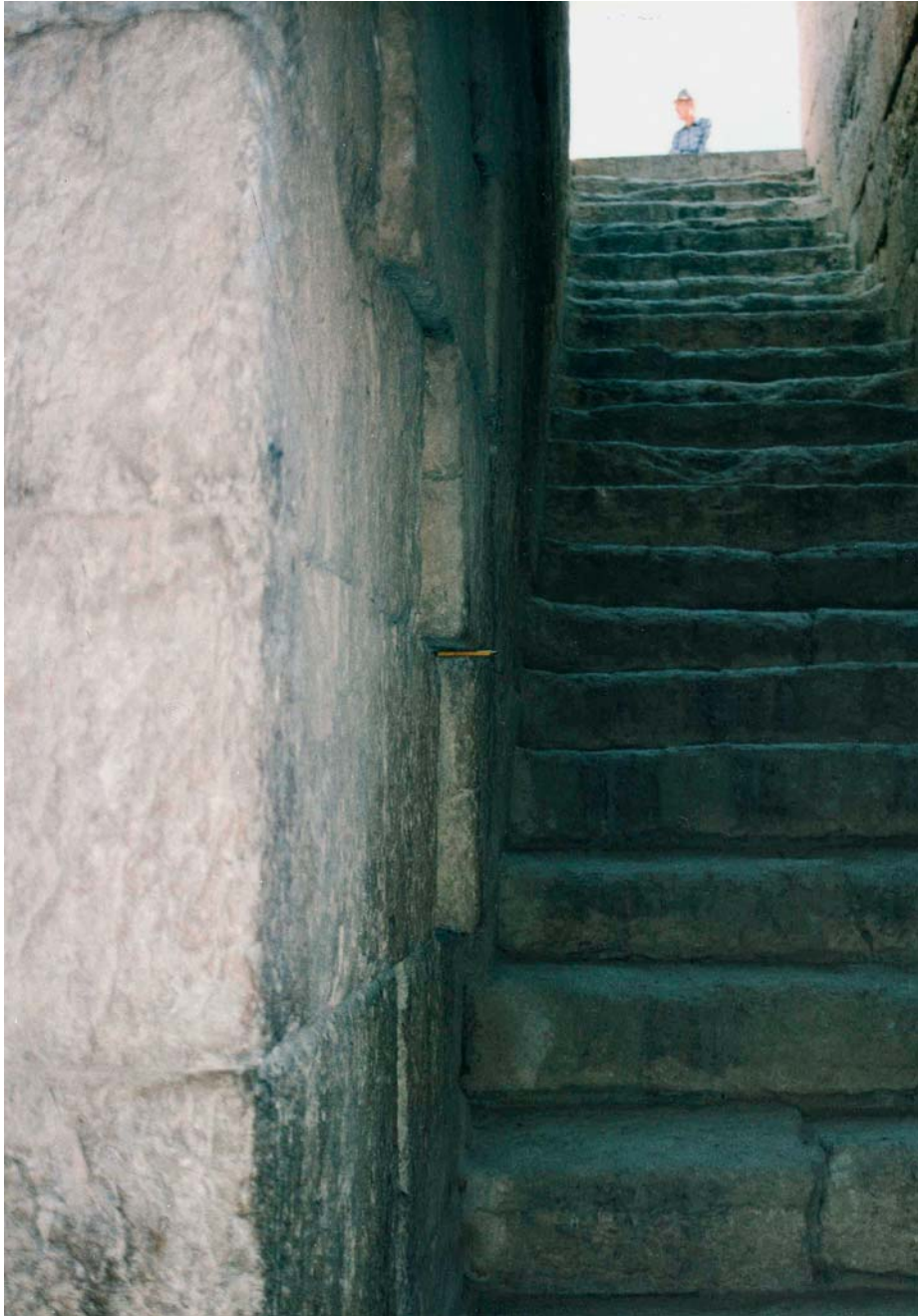


Fig. 13. Ejected stone blocks of the deformed entrance staircase wall, Anāhitā Temple, Bishāpur due to strong ground motion. Looking to the SE (December 1996).



Fig. 14. Ejected, back-tilted, fractured, spalled, and popped-up heavy cut stone block in the floor of the Anāhitā Temple, due to stress concentration as a result of strong ground shakings during the AD 531-579 earthquake (December 1996).

(ii) prior to Khosrau II (before AD 591); (iii) in the late Sasanid period (post-Khosrau II: post- AD 628 pre- AD 636); and (iv) during the Umayyad Caliphate (r. AD 660-750).

The Shāpur I mosaic floor (floor I) was covered by gypsum and stone over which a 10 cm thick walkway platform was built of gypsum plaster and stone, remnants of which were preserved along the SW wall (floor II). Keall (1989) dated it to the late Sasanid period when the floor was also partly damaged by a new wall with openings that was cut into it (the supposed back wall of the central ayvān). The new wall was clearly part of a later colonnaded court. It had stucco decorations comparable to those at 6th-century Ctesiphon. Coins of Khosrau II (r. AD 590-628; # 6 & 4) dated AD 612 and 622 were found in debris of the associate stratum on the Phase II floor (Walker 1956; Ghirshman 1956).

Ghirshman (1956) stated that accumulated debris from collapsed stones and grouts with Khosrau II coins (# 7 & 13; the former with added Arabic



Fig. 15. Shearing of cut stone blocks and fracture propagation across horizontal block joints due to stress concentration during strong ground shaking at the Anāhitā Temple of Bishāpur, destroyed by strong ground shakings during the AD 531-579 earthquake (December 1996).



Fig. 16. Broken and fractured lintel above the entrance doorway, and fracturing of the left (western) door jamb entrance stones of the Anāhitā Temple, damaged by strong ground shakings during the AD 531-579 earthquake.
Looking to the north (December 1996).

Kufic letters) and Yazdgerd III (r. AD 632-642; Walker, 1956) found between the phase III and phase IV floors could be indicative of: *‘either occurrence of a destructive event to the buildings, or of a temporary abandonment phase.’*

Debris above floor IV contained Umayyad coins (AD 660-750; # 8, 9, 11, 18) and with a single ‘Abbasid (r. AD 750-821) coin (# 17) (Walker 1956; Ghirshman 1956). The matter of the locations of the coins and Ghirshman’s (1956) description is clouded and it is not clear if there were one or two phases of destruction (between floors III and IV, and above floor IV). The destruction of the Triple Ayvāns with the Khosrau II coins could be concurrent with the destruction of the ca. AD 531-590 Anāhitā Temple mentioned above where Khosrau II coins were also recovered from the collapsed debris and the event was followed by the second major renovation phase of pre-591 (Table 5).

The destruction above floor IV could have been caused by an earthquake during the late Umayyad-early ‘Abbāsīd period (AD 713-762?). We choose AD 762 as the upper limit because it was the date the ‘Abbāsīd caliphate established their capital at Baghdād and had full control on the accounts of their lands. Further in depth excavation is required to resolve the ambiguities and properly bracket the events and their dates.

Destruction of the Southwestern Unfinished Columned Hall (Post Sasanid-Late Umayyad event: AD 713-762 Event?)

The southwestern Unfinished Columned Hall, in the immediate north of the putative congregational mosque area (Noruzi 1384/2005; the Qal’eh Dār al-Emāreh in Mehryār 1379/2000; the Umayyad Palace of Ghirshman 1971), is located about one km to the SW of the Anāhitā Temple. It covers an area 20 × 20 m and had approximately 12 round columns. Only the column bases and a single toppled stone column drums remains today. The column bases are built of angular rubble stone masonry with gypsum plaster. The stones used were taken from the ruined early Sasanid structures of the city (Ghirshman 1956; Mehryār 1379/2000; Noruzi 1384/2005).

Due to haphazard excavations the age of this structure is controversial. No reference to this Hall is found in the Muslim chronicles (Table 5) and contrary to Ghirshman (1956), Mehryār (1379/2000) and Noruzi (1384/2005), this structure could not possibly have been constructed in the early Islamic period when the country was in anarchy and the Moslem Arab invaders did not have knowledge of constructing sophisticated masonry structure. The southern side of the Unfinished Columned Hall is covered by one meter of debris (which unfortunately has not been investigated properly), upon which the putative congregational mosque (Noruzi 1384/2005) was built (fig. 17). It is hence probable that the Hall was built during the Sasanid Phase III major renovation (AD 628-636; Table 5). However, due to lack of proper investigation and any dating evidence this cannot be proven. The column rows of the Unfinished Hall and the putative congregational mosque follow the same general trend but with different intervals. Furthermore, the construction material used in these two structures is not comparable.

Rows of a single unfinished stone column drums with male/female indentations/holes found fallen toward the SE (N138°E) were not covered by any stratum (fig. 17 and 18; see also in Mehryār 1379/2000: 116-117,

Figure 31A-31B; Noruzi 1384/2005: 424-426). Male and female indentations were utilized in the stone column pieces (fig. 17 and 18) for adding resilience to the columns during strong ground motion and horizontal thrust. This technique was never used later at Bishāpur.

No archaeological layer was found below the Unfinished Columned Hall, although some Umayyad coins discovered in a sounding next to a column base might have been dug deposited in that period. The Unfinished Columned Hall seems to be incomplete because of either the invasion of the Arab Moslems in 16/637, or an earthquake. Its destruction is another mystery; it could have been vandalized by the Moslem Arab invaders or collapsed during the earthquake which damaged the Triple Ayvāns during the late Umayyad period (AD 713-750). Further investigation is required to address these issues.



Fig. 17. General view of the Unfinished Columned Hall (foreground lower level) with collapsed cut stone column drums. Remains of the putative congregational mosque (background and left) built above a one meter elevated platform with recently reconstructed column bases and destroyed walls. Looking towards SE.



Fig. 18. Close up view of a collapsed stone column showing an oriented row of column drums with male/female indentation in the Unfinished Columned Hall (foreground), located about one km to the SE of the Citadel. The elevated (~1 m) background with destroyed structure is the congregational mosque. Looking toward SW.

The AD 661-750 Structural Remains

The first and the oldest Islamic structural remains belong to a layer of three meters thick structures and debris composed of collapsed rectangular walls of a non-religious character built on virgin soil in. Discovery of the Umayyad Caliphate period coins (41-132 AH/ AD 661-750) indicates a late seventh-early eight century AD occupation at Bishāpur (Ghirshman 1956, 1971; Mehryār 1379/2000; Noruzi 1384/2005). The cause of destruction of these buildings is unknown.

The Putative Bishāpur Congregational Mosque (Umayyad Palace of Ghirshman, 1956, 1971) [the 12th Century Event?]

The first reference to the congregational mosque in Bishāpur is given by ‘Uthmān (728 AH/AD 1325) narrating events of the year 352 AH/ AD 979-80 (Table 5). The ruins of the purported congregational mosque

(Noruzi 1384/2005; the Umayyad Palace of Ghirshman, 1971; the Qal'eh in Mehryār 1379/2000) with dimensions of $\sim 60 \times 93.7$ m, were built upon a meter of debris covering the southern side of the Unfinished Columned Hall (fig. 17). It is located about 1 km to the SW of the Anāhitā Temple. The complex had apparently a mehrāb (N236°E), two large ayvāns (in the NE and NW with two rows of columns on both sides of each ayvān), a large columned shabestān in the south, peripheral porches, a peripheral wall with buttressed towers surrounding the complex, and a total of 124 column bases. Only the column bases made of medium-sized angular rubble stone masonry with gypsum mortars remain. During the excavation some 3rd-5th AH/AD 9th-11th century pottery was discovered and six periods of post-Sasanid reconstructions were recognized (Mehryār 1379/2000; Noruzi 1384/2005).

All the dressed stones used here were removed from the ruined Sasanid structures built by Shāpur I (Ghirshman 1956, 1971). A burned layer was also discovered in the eastern ayvān (Mehryār 1379/2000). The trend of the column bases of the putative congregational mosque and those in the Unfinished Columned Hall are the same but there is a difference in the distances and the construction material used.

All the large stone block structures of the putative congregational mosque including the surrounding walls were destroyed. The complex, both inside and outside the collapsed periphery wall, was covered with collapse debris. The remaining stone blocks of the walls show clear evidence of draping, distortion, tilting and widely opened vertical stone block joints due to horizontal thrust and lateral displacement from strong ground motion displacement (fig. 19; see also Mehryār 1379/2000: a24, Figure 37A). Some remnants of the column bases show uneven settlement with laterally displaced and pop up medium-sized angular corner stones. Slight clockwise rotation of large corner stone blocks is also visible in the remaining walls. These deformations coupled with the jumbled positioning of the masonry elements of the walls and columns, and the chronicles (see below) suggest that the area was subjected to strong ground motion caused by earthquakes.

After the complex collapsed, during an intervening horizon of possible demolition for rebuilding, the mehrāb was filled, most of the entrance points were blocked, and the areas between the collapsed columns were walled to make living spaces. Two post-collapse phases were recognized: (i) the main phase saw construction of thick masonry walls with gypsum mortar; and the next phase had masonry construction with clay mortar (Noruzi 1384/2005).



Fig. 19. Close up view of the destroyed congregational mosque structure with the remnants of the walls. Note evidence of horizontal thrust in the cut stone blocks. Note draping of the top cut stone block row to the left. The column bases are reconstructed recently.

Although Bishāpur lost its former importance and prosperity after the invasion of the Moslem Arabs, it was still a functioning town as large as the city of Estakhr, near from Persepolis, AD 951 to 1018 periods (Estakhri 350/951; Ebn Haukal 367/978; Anonymous AD 372/982). Apparently, the Bishāpur congregational and two additional mosques in the city were functioning in 369 AH/AD 979, 375 AH/AD 985, and 409 AH/AD 1018 (Moqaddasi 375/985; ‘Uthmān 728/1328; see Table 5). It seems that, the city declined further sometime in the 10th century AD. By AD 1107 the city of Bishāpur had completely fallen into ruins, but the congregational mosque and its menbar were still standing (Ibn al-Balkhi 504/1110). Much before AD 1340 all the inhabitants had already moved to Kāzerun (Mostaufi 740/1340). The cause of the destruction of the Bishāpur three mosques and departure of the inhabitants to Kāzerun are not documented in historic chronicles. It is probable that sometime in the 12th century AD an earthquake destroyed the mosques.

The Islamic Seminary (Madreseh; 4th-5th AH/AD 10th-11th centuries) [the 12th Century Event?]

Ruins of an Islamic school (~27 × 26 m) with round column bases were excavated by Sarfarāz (1366/1987) about 65 m to the NW of the Anāhitā

Temple. Apparently a square minaret was built into a wall. A stone fire altar was also found embedded in this area. Sarfarāz (1366/1987) wrote that the city regained its importance under the Buyids (945-1055 AD) and was a big town until the late 6th AH/AD 12th century when it was destroyed by a strong earthquake.

Sarfarāz (personal communication, January 1994) believed that this event was the strongest earthquake (no evidence is provided), and was possibly responsible for toppling the statue of Shāpur in Shāpur Cave approximately 3 km to the ENE of Bishāpur in Tang-e-Chowgān valley. Curzon (1892) and Wilson (1930) stated that local tradition favors the theory that the colossal statue of Shāpur-I (AD 241-272) was thrown down by an earthquake. Even Ghirshman (1971) indicated that the statue could have been toppled by an earthquake.

Despite the fact that the statue was vandalized during the 16 AH/AD 637 Moslem Arab invasion, in the late tenth century Moqaddasi (375/985) mentioned Shāpur Cave and added that Shāpur's crowned statue was '*standing*' at the mouth of the cave. Later, Mostaufi (740 AH/AD 1340) repeated the earlier tradition and wrote that Shāpur's statue was '*standing*' at the cave. Mostaufi's statement (AD 1340) that the statue was '*standing*' is doubtful since as State Accountant in the service of the Ilkhāns [hence the name 'Mostaufi'], he compiled data from different sources (such as Moqaddasi's treatise) which were available to his office, and he was not able to visit all the areas of the vast country described in his geographic book. Furthermore, he never mentioned that he has personally visited the site.

It seems that the putative congregational and other mosques, the Islamic Seminary, the statues of Shāpur at Shāpur Cave and in the city center next to the two commemorative columns (Moqaddasi 375 AH/AD 985), and possibly the bridge on the Shāpur River were destroyed by a strong earthquake with a nearby seismic source (the Kāzerun fault) sometime in the 12th century AD. The suburbs of Kāzerun were also in ruins around the early 12th century (Ibn al-Balkhi 504 AH/AD 1110).

The approximate intervals between these possible earthquakes of ca. AD 300 (AD 293-303), ca. AD 560 (AD 531-590), ca. 749 (AD 713-762), and ca. AD 12th century are ~260, ~189, and ~361 years, respectively (Table 5). For the following seven-century period, no historic information has survived between AD 1107 and AD 1808 (Table 5). Later, an earthquake of intensity VIII took place in 1824 along the Kāzerun fault, the

meizoseismal of which covered the Bishāpur archaeological site (fig. 3, Table 5). After 162 years, two medium-magnitude earthquakes of M_s 5.5 and M_s 5.9 took place along the same fault but to the north of Bishāpur on 1986.07.12 and 1988.08.11 (with macroseismic epicenter located approximately 22 km to the north of the Bishāpur archaeological site; fig. 3, Table 5). Disregarding the early 12th century-1808 record gap and the three mentioned earthquakes, the existing limited 3rd-12th century archaeoseismic data give an average recurrence interval of about 270 years along the Kāzerun fault section south of the fault bend (Table 5, fig. 3). These interseismic intervals (averaged \sim 270 years) are much shorter than intervals obtained from Tol-e Spid (averaged \sim 735 years). This must be due to the shorter length of the fault south of the fault bend addressed earlier.

Regression analysis (Wells & Coppersmith 1994) indicates that the 40 km long Kāzerun fault section south of the bend is capable of creating earthquakes of $\sim M_w$ 6.9 with maximum and average right-lateral displacement of \sim 1.19 m and \sim 0.78 m, respectively. Assuming the slip rate of 3.6-3.9 mm/yr along the fault (addressed earlier), we expect an earthquake of $\sim M_w$ \sim 6.9 to have a return period of \sim 270 yr (considering average and maximum fault displacement values). Therefore, despite the shortcomings, we may assume that the Bishāpur earthquake magnitudes were around 6.9.

III.6. *The Old Kāzerun town*

As with the town of Naubandégān located to the north of the Kāzerun fault bend (discussed earlier), the old town of Kāzerun was one of the important late Sasanid-early Islamic period towns of the Shāpur Khurrah district (MDT, 559-628), located 16 km to the east of the Kāzerun fault (fig. 3). It had two Zoroastrian fire temples of Chafteh and Kolāzan from the Sasanid period; and although it was the same size as Naubandégān, it was more prosperous and had more population (Estakhri 350/951).

According to Ibn al-Balkhi (504 AH/AD 1110) followed by Mostaufi (740/1340) Kāzerun was built by king Tahmures and then by King Shāpur son of Ardashir. Later, Firuz [Piruz; r. 459-484] great-grandson of Bah-rām-e Gur (V) transformed three villages into the town of Kāzerun; the shrine of Shaikh Abu Eshāq Kāzeruni is in the town (Mostaufi 740/1340). The suburbs of Kāzerun were in ruins around the early 12th century (Ibn al-Balkhi 504/1110; Table 5).

Moqaddasi (375/985) stated that Kāzerun was large and prosperous with a big busy bazaar. Most of the houses and the congregational mosque were located on a hill. The bazaar and the mansions of the merchants were located on the lower ground. The mayor was a Zoroastrian named '*Khorshid*' who had a lengthy dispute with Shaikh Abu Eshāq. The Zoroastrians were living in relative peace and security during the Buyids period (ca. AD 945-1055). There were two Zoroastrian fire temples in Kāzerun in the time of Shaikh Abu Eshāq (352-426/963-1035). However, later the Shaikh abandoned Zoroastrianism in the area and demolished them ('Uthmān 728 AH/AD 1328). Abu Eshāq's shrine in Kāzerun was visited by Ibn Batutah (750 AH/AD 1355) in AD 1330.

The Sasanid-early Islamic town of Kāzerun, known as Tal-e Juyum, is located close to the present town (Estakhri 350 AH/AD 951; Ebn Haukal 367 AH/AD 978; Anonymous 372 AH/AD 982; Ibn al-Balkhi 504 AH/AD 1110; Schippmann 1971; Whitcomb 1979; Miri 2009). The reason for its destruction and the time of relocating the town have not yet been investigated. Local inhabitants believe that the old town was destroyed by an earthquake, which cannot be substantiated since the mound has not been excavated.

The present Kāzerun town underwent intensity of VII during the 1824.06.02 $M_s \sim 6.0$ earthquake (fig. 3, Tables 1 and 5). During the 1824 earthquake (VIII at Bishāpur) Kāzerun was damaged (VII) and 150 people were killed in the town. There is >700 years gap in historic seismicity in the region, and it is probable that the Sasanid-early Islamic town was destroyed during the AD 713-762? earthquake (Table 3).

Two years after the 1824 earthquake, on June 14, 1826, while in Bishāpur, Alexander (1827) reported that: "I experienced the shock of an earthquake; it seemed to pass from south to north, accompanied by a strong rumbling noise among the hills, and sudden oppressive heat in the atmosphere." Alexander's observation of the south to the north direction of the seismic waves travelling is consistent of the motion along the nearly N-S trend of the Kāzerun fault. On the next day when Alexander arrived at Kāzerun wrote that: "At five we arrived at Kazeroon, a long and populous town, half in ruins from earthquake [of 1824]... In passing through the town of Kazeroon we did not find a single upper story standing, and the lower ones so hidden by the ruins of the upper, that the houses appeared buried underground." (Alexander 1827; emphasis added).

IV. Discussion

Despite the existence of numerous archaeological sites in close proximity to active earthquake-prone faults in Iran (Berberian 1994, Berberian & Yeats 2001; Berberian et al. 2012), limited archaeoseismic data have so far been extracted from previous archaeological studies (Table 6, fig. 2). Table 6, which briefly reviews current archaeoseismic knowledge on the Iranian plateau, clearly indicates that much remains to be done. Important research questions remain unresolved on the reported archaeoseismic events. These include the magnitude and intensity of the earthquakes at each site, the extent of meizoseismal areas, the periodicity of the large-magnitude earthquakes on a given fault, and the human, technological, and architectural responses to ancient large-magnitude earthquakes.

Table 6 clearly shows that large-magnitude earthquakes in the Iranian plateau have devastated ancient settlements over the past 7,000 years. Despite the long sequences of occupation at sites situated in close proximity to active earthquake-prone strike-slip faults, such as Tol-e Spid (~6,000 years) and Sialk (~8,000 years), only a few archaeoseismic events have thus far been detected at these sites (two events at the former and four at the latter; Table 6, fig. 2). Unexpectedly, no obvious archaeoseismic indicators (earthquake-related damage) were clearly detected during the 8,000 year settlement record of Tol-e Nurābād. These shortcomings clearly indicate that more attention should be given to archaeoseismic study during excavations by experienced multi-disciplinary teams.

Nonetheless, the reviews presented in Table 6, which should be observed cautiously, indicate that the existing archaeological data, although not aimed at earthquake archaeology, can provide indicators of a few large-magnitude hitherto unknown earthquakes. Palaeoseismic fault-trenching studies coupled with detailed archaeoseismic investigation and radiometric dating of active alluvial/fluvial deposits should constrain earthquake chronology, their source parameters, and periodicity.

V. Concluding remarks

Archaeological layers and ancient monuments exhibiting on-fault and off-fault abrupt seismogenic disturbance, deformation, distortion of stone blocks, fracturing, offsetting, differential settlement, structural damage and destruction, provide valuable data on ancient earthquakes, faulting

episodes, and their approximate seismic parameters. Such data can expand our knowledge of the temporal and spatial distribution of medium- to large-magnitude earthquakes, their recurrence periods, and long-term seismic hazard assessment along the adjacent active faults. It should also reveal how the structures responded to strong ground shaking during fault movements, and how technically and socially people reacted to earthquake damage and destruction by structural renovations in constructing resilient buildings or facing decline, abandonment, and relocation.

We have applied a preliminary integrated archaeology, earthquake archaeology, historical documents, and geological/seismological study of the sites with maximum eight millennia time spans along the central segment of the 120 km-long Kāzerun active fault in the Zāgros Mountains of SW Iran. Our study indicated several types of off-fault deformation and changes in archaeological record and monumental structures that can be attributed with high certainty to strong ground motion associated with ancient medium- to large-magnitude earthquakes generated by right-lateral slip motion along the Kāzerun fault ~ 3850-3680 BC and 3370-3030 BC (in Tol-e Spid), 400-200 BC (in Qal'eh Kāli), and ca. AD 293-303, ca. AD 531-590, ca. AD 713-762, and ca. 12th century (in Bishāpur). Only large-magnitude earthquakes can realistically explain the formation of the developed fractures, site disturbances, and architectural damage, deformation and distortion to the structural elements of the monuments, observed at Tol-e Spid, Qal'eh Kāli, and Bishāpur. Other ancient disturbance episodes cannot be proved with the available data. They are briefly addressed here in hope of being included in the future excavation projects.

Archaeological stratigraphy deformation at the Tol-e Spid mound, located 2.2 km to the west of the Kāzerun fault, revealed at least two episodes of distinctive off-fault deformation and fracturing with vertical displacements caused by strong ground motion associated with large-magnitude earthquakes around 3850-3680 BC and 3030 (3370-3030) BC. An approximate 700-800 years return period by two sets of off-fault strong ground motions is compatible with the regression analysis results of occurrence of $\sim M_w 7.3$ earthquakes along the 80 km long Kāzerun fault section north of the fault bend. However, discovery of only two archaeoseismic events is not compatible with the cumulative slip rate of the fault which could create at least five ~ 7.3 magnitude earthquakes during 4000 years of life at Tol-e Spid. It must be remembered that this evidence comes from only one small trench.

Despite cultural material data spanning eight millennia and the proximity of the site to the fault as well as to Tol-e Spid, no definitive archaeoseismic indicator has yet been detected in the limited excavated trenches at Tol-e Nurābād located about 13 km to the SSE of Tol-e Spid mound and 2.5 km to the west of the Kāzerun fault. There are several fractures, toppled walls, stratigraphic discontinuities, disconformities, and stratigraphic tilting has been observed that may have been affected by earthquake activity, but there is a lack of unequivocal evidence.

The Qal'eh Kāli Achaemenid stone structures, located about 2.5 km to the SW of the Tol-e Spid mound and 3.5 km to the west of the Kāzerun fault, showed evidence of post-Achaemenid strong ground motion in the form of collapse, destruction, differential settlement, fracturing and toppling of the large stone blocks in a N-S direction ca. 400-200 BC, and possibly ca. 100 BC.

The ruins of Bishāpur preserve ancient signs of structural damage and deformation caused by strong ground motion associated with strong earthquakes which resulted in destroyed Shāpur's Audience Hall, the Anāhitā Temple, the congregational and two other mosques and a seminary, and toppled the large statue of Shāpur around AD 293-303, AD 531-590, AD 713-762, and the AD 12th century. The return period of ~270 years of the four earthquakes documented at Bishāpur is compatible with the repeat time of $\sim M_w$ 6.9 earthquakes along the 40 km long Kāzerun fault section south of the fault bend.

Preliminary shallow palaeoseismic trench study across the Kāzerun fault about 3 km to the SW of Bishāpur (near Fathābād; 29°45'N-51°54'E), where there is at present a 2 m vertical displacement along the fault, indicated signs of at least two large-magnitude plaeoearthquakes during the last 9,000 years (Bachmanov et al. 2004). The authors claimed that each of these two events created a 1.5 m vertical and 7.5 m (?) right-lateral horizontal slips. Cumulative right-lateral slip of 530 m is measured along the diverted stream beds at the same locality along the fault (Authemayou et al. 2009). The statements of Bachmanov et al. (2004) are not compatible with the 40 km long segment of the fault south of the fault bend (with $M_{max} \sim 6.9$), which is not capable of generating a large-magnitude earthquake ($M_w > 7.0$).

Using regression of rupture length and magnitude of earthquakes (Wells & Coppersmith 1974), rupturing of 120 km total length of the Kāzerun fault could create an earthquake of magnitude $\sim M_w$ 7.4 resulting in a maximum and average right-lateral coseismic slips of 3.9 m and 2.2 m, respectively. Considering a lower magnitude of $\sim M_w$ 7.0, which is still in excess of

likely threshold values for complete destruction of the structures, the slip numbers will fall to 1.51 m and 0.63 m, respectively. Nonetheless, we have not been able to document the 120 km rupturing of the Kāzerun fault to the north and south of the fault bend. In any event, the relatively small numbers of medium- to large-magnitude earthquakes revealed during archaeological investigations are far from the number of earthquakes obtained from the slip rate estimates.

Although our archaeoseismic study of previous excavations of sites along the Kāzerun fault did not deliver the accurate seismic parameters of the ancient earthquakes, it advanced our knowledge of the past activity of the fault and revealed that some of the archaeoseismic events discussed were of larger magnitude than the earthquakes recorded since 1824 (Tables 1 and 6). Many cultural heritage sites in Iran are located in earthquake prone zones and are threatened by strong earthquakes. There is an urgent need to discover how ancient and old structures, monuments and people responded to the strong ground motion of large-magnitude earthquakes. The archaeoseismic events might have caused Tol-e Spid and Bishāpur to decline and may have resulted in site abandonment at specific points.

The review and analyses conducted in this study remain preliminary because of uncertainties in the relative and absolute chronology, the limited exposures of excavated trenches, and a lack of original multi-disciplinary research on the subject. Due to these shortcomings and a lack of excavated sites, we have not been able to provide constraints on the seismic parameters of the strong archaeoseismic events. A proper understanding of the recurrence period of earthquakes along the different segments of the Kāzerun fault will depend on future palaeoseismic trench studies across the fault and on detailed archaeoseismic investigation by experienced earthquake geologists and archaeologists in deciphering the archaeoseismic indicators recorded by the archaeo-seismometers.

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Table 1: Known Historical (pre-1900) and Instrumentally Recorded Seismicity (post-1900) Along the Kāzerun Active Fault in the Zāgros [29°30'N-30°45'N and 51°15'E-51°45'E]. Based on Berberian & Tchalenko (1976); Berberian (1981, 1994, 1995, 1997, 1998); Ambraseys & Melville (1982); Engdahl et al. (2006); & ISC. (see also fig. 3).

Date (yr.mt.dy)	Time (GMT)	Epicenter 00°N-00°E	Location	M _b	M _s	M _w	I ₀ (MMI)	CD _w (km)	FT/ REF	People Killed/ Injured	Felt Area
PRE-1824 GAP IN HISTORICAL SEISMIC DATA											
1824.06.02		29.70-51.51*	Bishāpur		>6.0		VIII	-		150	Bushehr, Shirāz
1891.12.14	Night	29.90-51.59*	Golgun		>5.5		>VII	-		?	
1892-1925 GAP IN TELESEISMIC DATA											
1925.12.18	05:53	28.95-51.29*	Ahram	5.5			VII	-		02	Bushehr, Kāzerun
1934.02.04	13:27	30.65-51.64			6.3			-			Kāzerun
1946.03.12	02:21	29.80-51.45	Kāzerun?	5.7	5.7		VII	-		Few	Bushehr, Shirāz, Marvdasht
1967.01.15	00:03	29.60-51.49*	Komāraj	4.7	4.2			-			Kāzerun
1971.04.06			Dasht-e Arzhan	5.3				06	RLSS(a)/BJP		
1971.10.23	11:49	29.59-51.48* 29.63-51.44	Komāraj	4.7				-			Kāzerun
1986.07.12	07:54	29.98-51.69* 29.91-51.55	Golgun	5.7	5.6	5.5	VII	07	RLSS(a)/BJP		Fahliān, Mamasani, Kāzerun
1986.07.13	00:48	29.94-51.47	Golgun	5.0	4.5			-			
1986.07.20	15:56	29.94-51.69	Golgun	4.7				-			
1986.10.10	11:50	29.91-51.60	Golgun	4.6				-			
1986.10.18	08:48	29.82-51.45	Golgun	5.0	3.9			-			

Date (yr.mt.dy)	Time (GMT)	Epicerter 00°N-00°E	Location	M _b	M _s	M _w	I ₀ (MMI)	CD _w (km)	FT/ REF	People Killed/ Injured	Felt Area
1986.11.20	10:09	29.84-51.55	Golgun	5.0	3.9			-			
1986.11.20	20:08	29.91-51.58	Golgun	5.2	4.1			-			
1986.12.20	23:47	29.90-51.57	Golgun	5.4	5.0	5.3	VI+	08	RLSS(a)/BJP		
1986.12.21	00:11	29.91-51.59	Golgun	4.9				-			
1987.01.11	12:31	29.93-51.79	Golgun	4.8	4.1			-			
1988.08.11	16:00	29.94-51.58	Harāyerz	4.4	6.1	5.5	VII	07	RLSS(a)/BJP	06	Fahliān, Mamasani, Kāzerun
1988.08.11	16:04	29.88-51.65	Doshman Ziāri	5.6	5.9	5.8	VII	09	RLSS(a)/BJP		Fahliān, Mamasani, Kāzerun
1988.08.11	21:52	29.93-51.52	Doshman Ziāri	4.8				-			
1988.08.13	16:46	29.93-51.65	Doshman Ziāri	4.8	4.5			-			
1988.08.26	09:49	29.92-51.66	Doshman Ziāri	4.5	3.8			-			
1988.08.28	10:12	30.01-51.69	Doshman Ziāri	4.4	3.7			-			
1988.08.30	17:30	29.95-51.72	Doshman Ziāri	4.9	4.7	5.1		-	RLSS(b)/HRV		
1988.12.06	13:20	29.89-51.62	Doshman Ziāri	5.5	5.7	5.6	VII	10	RLSS(a)/BJP		
1989.05.03	09:12	29.89-51.80	Doshman Ziāri	5.0	4.9	5.1	VII	-	RLSS(b)/HRV		
1989.05.03	09:13	29.95-51.68	Doshman Ziāri		4.6			-	RLSS (b)/HRV		
1989.05.03	12:16	29.93-51.85	Doshman Ziāri	4.5				-			
1996.11.18	11:52	29.91-51.57	Golgun	5.3	4.9	5.3		-	RLSS(b)/HRV		
1997.04.02	02:42	30.04-51.56	Harāyerz	4.4				-			
2001.12.11	05:22	30.47-51.51	NE Kushk	4.3				-			Yāsuj, Fahliān
2003.01.11	17:45	29.70-51.51* 29.61-51.53	Bushgān	5.2	4.8	5.2	VI+	-	RLSS(b)/HRV		Nurābād, Kāzerun

Date (yr.mt.dy)	Time (GMT)	Epicenter 00°N-00°E	Location	M _b	M _s	M _w	I _o (MMI)	CD _w (km)	FT/ REF	People Killed/ Injured	Felt Area
2003.01.25	17:49	29.26-51.29	Borāzjān	4.0				-			
2010.12.01	19:55	30.02-51.46		5.1		4.9		-	RLSS (b)/GCMT		
2011.01.05	05:55	30.08-51.56				5.4		-	RLSS (b)/GCMT		
2011.01.08	00:24	30.10-51.62		5.2		5.1		-	RLSS(b)/GCMT		

Notes on Table – 1:
CD_w (km): Centroid depth of earthquake in km (±2-4 km) based on *P* & *SH* body waveform modeling, (Baker et al., 1993).
Epicenter: Instrumental epicenter mainly after Engdahl et al., (2006). *: Macroseismic epicenter (this study).
HRV: Harvard CMT (Centroid-Moment-Tensor) solution (HAR: Harvard; GCMT: The Global CMT Project, USA).
I_o (MMI): Epicentral Intensity (Modified Mercalli Intensity Scale).
M_b: Body-wave magnitude.
M_s: Surface-wave magnitude.
M_w: Moment magnitude.
REF/REF: Fault type (mechanism): (a) Constrained focal mechanism by *P* & *SH* body wave modeling (Baker et al., 1993); (b) CMT solutions (HAR: Harvard; GCMT: The Global CMT Project, USA).

Table 2: Summary of Alluvial Aggradation of Archaeological Sites in Central Iran and the Zagros since the Neolithic Period

Archaeological Site & Period	Depth of the lowest Period (cm bgs)	Approx. Age (BP)	Reference	Average Alluvial Aggradation rate (mm/yr) ¹	Active Fault	Distance to the Fault (km)	Fault/Seismicity Reference
I. CENTRAL IRAN:							
Hasanlu	>250	Neolithic	Danti et al., 2004.	?			
Ganj Darreh	100	10,400	Young, Jr., & Smith 1966	0.096	Main Recent SS.	22	Berberian 1995.
Zāgheh IX	610-460	7,170	Negahbān 1974a, b, 1977; Shahmīrzādi 1977, 1995; Fāzeli et al. 2005, Schmidt et al. 2011.	0.85-0.64	Ipak R.	15	Berberian 1976, 1981, 1983, 1995; Berberian et al. 1983; Berberian & Yeats 1999, 2001.
Sialk I (South Mound)	580	7,000	Ghirshman 1939a; Roustā'i 2002.	0.82	Kāshān SS.	2	Berberian 1976, 1981, 1995; Berberian & Yeats 1999; Berberian et al. 2012.
Qabrestān I	560	6,215	Negahbān 1974a, b; Fāzeli et al. 2005; Schmidt & Fāzeli 2007; Schmidt et al. 2011.	0.9 [2.5: from 4 th to 2 nd Mill. B.C.; & 0.4: 2 nd Mill. B.C. to Present]	Ipak R.	14	Berberian 1976, 1981, 1983, 1995; Berberian et al. 1983; Berberian & Yeats 1999, 2001.
Shahdād (Chāleh Takāb)	?	4,400	Kāboli 1989	?	Shahdād T. Nāyband S. Gowk S.	8 15 118	Berberian et al. 2001; Berberian 2005.
Sagzābād	270	4,050	Schmidt et al. 2011	0.66	Ipak R.	14	Berberian 1976, 1981, 1983 1995; Berberian et al. 1983; Berberian & Yeats 1999, 2001.
Qabrestān cemetery	150	2,500	Schmidt & Fāzeli 2007; Schmidt et al. 2011	0.6	Ipak R.	14	Berberian & Yeats 1999, 2001.

Archaeological Site & Period	Depth of the lowest Period (cm bgs)	Approx. Age (BP)	Reference	Average Alluvial Aggradation rate (mm/yr) ¹	Active Fault	Distance to the Fault (km)	Fault/Seismicity Reference
Sā'in Qal'eh	?	?	De Filippi 1865	?	E. Soltāniyeh. Soltāniyeh.	2 10	Berberian & Qorashi 1984.
II. ZĀGROS ACTIVE FOLD-THRUST BELT:							
Archaeological Site & Period	Depth of the lowest Period (cm bgs)	Approx. Age (BP)	Reference	Average Alluvial Aggradation rate (mm/yr) ¹	Active Blind Thrust/Folding/SS Fault	Distance to the Major Fault/Anticline Axis (km)	Fault/Seismicity Reference
'Alikosh, Boz Mordeh Phase (Dehlorān)	300	8,500	Hole et al. 1969; Neely & Wright 1994.	0.35	Zāgros Mountain Front T. (Siāhkuh).	16	Berberian 1995.
Choghā Sefid (Dehlorān)	350-500	8,400	Hole 1977; Neely & Wright 1994.	0.41-0.59	Zāgros Mountain Front T. (Siāhkuh).	5	Berberian 1995.
Tapeh Sabz, Sabz Phase (Dehlorān)	350	8,200	Hole et al. 1969; Neely & Wright 1994.	0.42	Zāgros Mountain Front T. (Siāhkuh).	9	Berberian 1995.
Tol-e Spid	400	6,000	Petrie et al., 2007	0.66	Kāzerun SS.		This study
Dar Khazineh	500	5,000	Lees & Falcon 1952; Lees 1955.	1.0	Shāh anticline/Shustar T. Dezfūl Embayment (Lahbari) T.	9 20	Berberian 1995.

Notes on Table 2: For comparison, the two sites adjacent to the strike-slip faults in two different zones are highlighted in grey.

¹: Assuming a non-realistic constant rate with no aggradation rate change.

Bgs: Below ground surface.

R: Reverse fault.

SS: Strike-slip fault.

T: Thrust fault.

Table 3: Relative Chalcolithic/Bronze Age Chronology for Tol-e Spid Mound [30°15'08.83"N-51°29'03.76"E, +854 m amsl] (revised after Petrie et al. 2007, 2009) Adjacent to the Käzerun fault (fig. 3, 5-7).

Approx. Date	KRB Period	Tol-e Spid stratigraphic phases	Architecture	Earthquake effect	Drought/ Cooling events
1986.07.12				Tol-e Spid underwent intensity V (MMI) during M_w 5.5 earthquake.	
2360 YRS GAP (400 BC-1960 AD) IN SEISMIC DATA					
330-50 BC	Post Achaemenid	8-1	Structures with mud-brick walls atop river stone foundations and occupation deposits		
400-330 BC	Late Achaemenid	10-9	Mud-brick wall and associated occupation		
800-400 BC	Early Achaemenid	12-11		Collapsed mud-brick structure & steep sloping deposits (?)	
2600 YRS GAP (3000-400 BC) IN SEISMIC DATA					
1600-1200 BC	Qa'leh/L. Kaftari-Qal'eh/Shoghā Teimurān	15-13	Occupation and fill deposits		
1600 BC	Kaftari	16	Well-constructed wall by large river stones w/ pebbles packed tightly as interstices to reinforce.	-	
1800 BC					
2140-1880 BC	Kaftari	17	None Structural.	-	4.2 Ka Event: 2200-1700 BC
3030-2140 BC			HIATUS; SITE ABANDONMENT		
3030 BC			3030 EARTHQUAKE: FRACTURES CUTTING PHASE 20 THROUGH 18		

Approx. Date	KRB Period	Tol-e Spid stratigraphic phases	Architecture	Earthquake effect	Drought/ Cooling events
3370-3030 BC	Bānesh	18	Mudbrick, river stone structure.	N-S Fracture w/normal mechanism, differential settlement w/5-15 cm vertical displacement; disturbed/displaced stone wall.	5.2 K Event: 3600-3000 BC
	HIATUS?, SITE ABANDONMENT?				
3500-3370 BC	Lapui/Bānesh Transition	19	River stone structure.	Disturbed rive-stone wall; N-S Fracture, differential settlement.	
3710-3510 BC	Terminal Lapui	20	Mud brick structure and occupation.	Tilted mudbrick structure; N-S Fracture, differential settlement.	
3850-3710 BC	Lapui	21	Chineh structure.	-	
	Lapui	22	River stone structure.	-	
3850-3680 BC		3850-3680	EARTHQUAKE:NEARLY N-S & E-W FRACTURES CUTTING PHASE 31 THROUGH 23		
4100-3850 BC	Early-Middle Lapui	23	Mudbrick structure, pebble pavement	Fracture w/reverse mechanism	
	Lapui	24	Occupation		
	Lapui	25	Mud brick structure and collapse		
	Lapui	26	Occupation		
	Lapui	27	Mud brick structure and collapse		
	Lapui	28	Mud brick structure, occupation and post hole		
	Lapui	29	Mud brick collapse		
	Lapui	30	Pit fill and occupation		
	Early Lapui	31	Mud-brick structure and occupation		

Notes on Table-3:
Amsl: Above the mean sea level.
KRB: Kur River Basin.
Drought /Cooling Events: Major climate change episodes after Kay & Johnson (1981); Weiss (2000); Stevens et al. (2006); Fleitman et al. (2007).

Table 4: Relative Chronology for the Qal'eh Kāli Site [30°13'27.03"N-51°26'54.74"E, + 837.5 m amsl] (revised after Potts et al. 2009)
Adjacent to the Kāzerun Fault (fig. 3 & 10).

Date	Stratigraphic Phase	Architecture	Earthquake effect
1986.07.12			Qal'eh Kāli & Tol-e Spid underwent intensity V (MMI) [Tol-e Nurābād VI] during M_w 5.5 earthquake.
1935-1959 [possibly 1946.03.12]	Phase VI: Destruction of Pre-modern Qal'eh Kāli village.	Mud brick structures.	Mud brick structural collapse possibly due to the 1946.03.12 M_s 5.7 earthquake.
	GAP IN SEISMIC DATA		
	Phase V: Pre-modern Qal'eh Kāli Village		-
	Phase IViii: Large-scale Fire		-
	Phase IVii: Squatter occupation.		-
ca. 100 BC - ?	Phase IV:	Mud brick Structural collapse.	??
	Phase IIIii:	Occupation- reuse of portico.	
ca. 200 – 50BC	Phase IIIi:	Post Achaemenid construction over the collapsed parapet.	-
	Phase IIii: Site Abandonment	Accumulation over collapsed parapet.	
ca. 400-200BC	Phase IIi: Earthquake		Initial collapse of the Achaemenid Portico.
ca. 500-400BC	Phase I: Achaemenid Portico.		-

Table 5: Earthquake Evidence at the Royal City of Bishāpur [29°46'39.72"N-51°34'16.58"E, +877 m amsl] Adjacent to the Kāzerun Fault (fig. 3; Table 1)

Date (AD)	Major events	Architecture	Earthquake effect	Reference
1986.07.11 & 12	Earthquake.		Bishāpur underwent intensity V (MMI) during M_w 5.5 earthquake.	Berberian 1995.
1824.06.02	Earthquake.		Bishāpur underwent intensity VIII (MMI) during $\sim M_s > 6.0$ earthquake. 2 capitals w/bull protomes on top of NW wall of Ānāhiṭā toppled. Many houses collapsed in Kāzerun (VII) & 150 killed.	Irān, 1309/1824; Fasā'i 1313/1895; Alexander 1827; Wilson 1930; Ambraseys & Melville 1982; Berberian 1995.
Late 1811	Major Stone found Shāpur's statue fallen on the ground in Shāpur's Cave. Hassani's (1286/1869) statement that the statue was standing in the midst of the cave is not warranted.			Ouseley 1819.
1809 & 1811	Four capitals w/bull protomes on top of NW wall of Ānāhiṭā.			Morier 1812, 1818
1107-1808	>700-YRS GAP IN SEISMIC DATA [some M_w ~6.9 earthquakes might have been lost]			
1370-1375 1380-1388 1399-1405	Invasion of the Timur's Turco-Mongol Hordes. Destruction of the infrastructure.			
13 th -16 th century	Occupation remains.			Noruzi 1384/2005.
13 th -14 th century	Buildings cover the remaining lower sections of the 2 partly collapsed commemorative columns in the city center.			Ghirshman 1971.

Date (AD)	Major events	Architecture	Earthquake effect	Reference
1219-1250	Invasion of the Mongol Hordes; Destruction of the infrastructure.			
12 th century?	Earthquake.		Statue of Shāpur at the Shāpur Cave toppled; the Congregational & 2 other mosques destroyed. Bishāpur in ruins; population migrated to Kāzerun.	Sarfarāz 1366/1987, Pers. Com. 1994; Berberian 1994, 1997, 1998; this study.
1107	Bishāpur in ruins, but it still had the Congregational mosque & <u>menbar</u> .			Ibn al-Balkhi 504/1110.
1067?	Abu Sa'id Shabānkāreh invaded & destroyed (?) Bishāpur.			Fasā'i 1313/1895, Mostafāvi 1343/1964 gives 502/1108-9.
1018-19	Shaikh Abu Eshāq preached at Bishāpur <u>Congregational mosque</u> in 409/1018-19,			'Uthmān 728/1325.
10 th -11 th century	Islamic Seminary			Sarfarāz 1970, 1366/1987.
985	Bishāpur was in ruins. The Congregational, Khezr, & mosque w/black flagstone* are roofed. Shāpur's statues at the city (by the commemorative columns) & at the Shāpur's Cave were standing.			Moqaddasi 375/985.
979-80	Bishāpur <u>Congregational mosque</u> was active in 352/979-80.			'Uthmān 728/1325.
ca. 9 th -10 th century	Construction of the Bishāpur Congregational mosque.			
951-978	Bishāpur city was as large as Estakhr but w/more population. It had fire temples and 4 gates. In the midst of it is a singular hill or eminence like a tower or dome.			Estakhri 350/951; Ebn Haukal 367/978.

Date (AD)	Major events	Architecture	Earthquake effect	Reference
879-934	Caliphate textile factories in Sābur (Arabicized Bishāpur).			Ghirshman 1971.
Late Umayyad-early 'Abbasid (713-762?)	Earthquake.		Destruction of the Triple Ayyvāns Buildings (with Mosaic Hall) & the SW Unfinished Columned Hall.	Ghirshman 1956, 1971; this study.
699-713	Sābur (Arabicized Bishāpur) mint on Derham coins w/Hijra dates.			Loftus 1857; Sourdrel 1953; Miles 1959; Ghirshman 1971.
661-750 [Umayyad Caliphate period]	4 th Major Renovations: Early Islamic period Occupation & Renovations. Phase IV Floor at the Mosaic Hall w/coins dated pre-700 to early 9 th century.	Rectangular non-religious structures.		Ghirshman 1956, 1971; Mehryār 1379/2000; Noruzi 1384/2005.
645, 646, 648	Riots at Bishāpur and Kāzerun were suppressed by the Moslem Arab invaders.			Ibn al-Balkhi, 504/1110.
637	Invasion of Moslem Arabs 16/637. Destruction of the infrastructure at Bishāpur, Kāzerun & Naubandégān.			Balāzuri 3 rd /9 th century; Ibn al-Balkhi 504/1110.
628-636	3 rd Major Sasanid Renovations during the Late Sasanid Period; Phase III Floor at the Mosaic Hall w/coins dated 612 & Yazdgerd III (r. 632-651).			Ghirshman 1956, 1971.
Pre-591 (late 6 th -early 7 th century)	2 nd Major Sasanid Renovations Prior to Khosrau II Sasanid (r. 591-628); Phase II Floor raised 25 cm at the Mosaic Hall.			Ghirshman 1956, 1971.
ca. 531-590 (?)	Earthquake.	Subterranean rubble stone masonry structure faced w/cut stone blocks & 14 m high walls.	Bishāpur Anāhitā Temple & the Triple Ayyvāns destroyed.	Sarfarāz, pers. Com., 1994; Berberian 1994, 1997, 1998; this study.
303-530	?			

Date (AD)	Major events	Architecture	Earthquake effect	Reference
388-399	Bahrām IV coin w/ Bishāpur mint			Ghirshman 1971.
309-379	1 st Major Sasanid Renovations During the Reign of Shāpur II Sasanid	Ghirshman 1956, 1971.		
ca. 293-303 (?)	Earthquake.	Rubble stone & plaster masonry structure faced w/cut stone blocks & 20-25 m high cupola.	High cupola of the Shāpur's Hall of Audience damaged. Possibly a distant earthquake.	Sarfārāz, pers. Com., 1994; Berberian 1994, 1997, 1998; this study.
254-379	Chowgān Valley Shāpur River sculpture reliefs.	Bas-reliefs.		Ghirshman 1971; Overlaet 2009.
244-266 AD	Construction of Bishāpur by Shāpur I Sasanid (possibly on virgin soil).	City & Citadel (with palaces & the Anāhiṭā Temple). Rubble stone masonry structures faced w/cut stone blocks; & brick or rubble & plaster houses/ palace inside walls.		Ibn al-Balkhi 504/1110; Salles & Ghirshman 1938; Ghirshman 1938, 1939b, 1945, 1951, 1956, 1971; Sarfārāz 1970, 1987; Yāsi 1971; Wynen 1972-74; Mehryār 1378/1999; Keall 1989.
330 BC-636 AD [Seleucids, Parthians, & Sasanids]	GAP IN SEISMIC DATA			
330 BC	Alexander-III of Macedonia destroyed the city of Dindelā/Donbalā (Ancient Bishāpur)?			Ibn al-Balkhi 504/1110.
550-330 BC [Achaemenids]	GAP IN SEISMIC DATA			
The mythical Kiyānids	King Tahmures Divband Kiyānid founded the city of Dindelā (Donbalā)?			Ibn al-Balkhi 504/1110; Mostaufi 740/1340.

Notes on Table 5:

*: The black flagstones were taken from the Sassanid West Mosaic Hall (Ghirshman 1956, 1971).

Table 6: Summary of the Discovered Archaeoseismicity Events in Iran (Organized in chronological order. See fig. 2 for locations)

Approx. date	Location [00°00'N-00°00'E]	Archaeo. Period/Phase	Earthquake effect	~I ₀	~M _s	Active fault (Mech.)	Ref.
1145	Vineyard Tapeh, Shādyākh, Neyshābur [36°10'-58°49', +1183m].	-	Neyshābur Earthquake: Collapsed walls & ceilings; two skeletons under fallen debris.	> VIII	>6.0	Binārud?, Neyshābur? (R)	Wilkinson 1986; Berberian & Yeats 1999.
12 th century	Bishāpur [29°46'39.72"-51°34'16.58", +877 m].	-	Bishāpur Earthquake: Collapse of the Islamic seminary bldg., three mosques, & toppling of Shāpur's statue.	> VIII	>6.0	Kāzerun (RLSS)	Moqaddasi 985; Sarfāz 1366/1987, pers. Com., 1994; Berberian 1984; This study.
1066 May	Qā'en, E. Iran [33°43'-59°11', +1447 m].	-	Qā'en Earthquake: Complete destruction of Seljuk mosque.	> VIII ⁺	>6.5	Pāvak? Boznābād (RLSS)	Nāderi 1989; Berberian & Yeats 2001.
713-762	Bishāpur [29°46'39.72"-51°34'16.58", +877 m].	-	Bishāpur Earthquake: destruction of the Triple Ayyān bldgs. & SW Unfinished Columned Hall.				Ghirshman 1956, 1971; This study.
531-590	Bishāpur [29°46'39.72"-51°34'16.58", +877 m].	-	Bishāpur Earthquake: Collapse of the Anāhiā Temple & the Triple Ayyāns.	> VIII ⁺	6.9	Kāzerun (RLSS)	Sarfāz, pers. Com., 1994; Berberian 1984, 1997, 1998; This study.
post-second half of the third century	Mile-e Ezhdehā [30°06'-51°27', +927m].	Early Sasanid	Collapse of top of tower, deep vertical fractures, shifted stone blocks.	?	?		This study.
293-303	Bishāpur [29°46'39.72"-51°34'16.58", +877 m].	-	Bishāpur Earthquake: Collapse of the high cupola of Shāpur's Hall of Audience.	> VIII	>6.0	Kāzerun (RLSS)	Ghirshman 1956; Sarfāz 1987; Sarfāz pers. Com., 1994; Berberian 1984; This study.

Approx. date	Location [00°00'N-00°00'E]	Archaeo. Period/Phase	Earthquake effect	~I ₀	~M _s	Active fault (Mech.)	Ref.
3800 BC	Sialk, Kāshān [33°58'07"- 51°24'15"; +967.94 m].	Sialk III ₅ / III ₆	Sialk III ₅ Earthquake: Complete destruction of Sialk III ₅ , several skeletons covered by debris. Fractures cutting walls & floors.	>VIII ⁺	>6.5	Kāshān (RLSS)	Berberian et al. 2012.
Early 5 th Mill. BC	Qara Tapeh, near Qomrud [34°43'90"-51°03'89", +850m].		?	?	?	Alborz, Kushk-e Nosrat, Sarājeh.	Kāboli 2000
3850-3680 BC	Tol-e Spid, Fahlān [30°15'08.83"-51°29'03.76", +854 m].	23/22 Lapui	Tol-e Spid Earthquake: Fracture w/reverse displacement.	~IX	~7.3	Kāzerun (RLLS)	This study.
ca. 4300 BC	(ca. 6.3 ka) Draught (Singh et al. 1990; Fleitmann et al. 2003, 2007; Lézine et al. 2007; Djamāli et al. 2010) [Possible Loss of Archaeoseismic Data]						
5000 BC	Sialk, Kāshān [33°58'26"- 51°24'27"; +952.02 m].	Sialk I ₅ /II ₁	Sialk I ₅ Earthquake: Collapsed walls covered by sand storm deposits, abandonment, and settlement shift.	?	?	Kāshān (RLSS)	Berberian et al. 2012.
6500-6000 BC	(ca. 8.2 ka) Draught/Cooling Event (Weiss 2000; Rohling & Pälike 2005; Weninger et al. 2006; Staubwasser & Weiss 2006; Fleitmann et al. 2007; Ebbesen et al. 2008; Gronenborn 2009; Akkermanns et al. 2010) [Possible Loss of Archaeoseismic Data]						
10000 BC	Zard-e Sāhel, Kāshān [33°55'41.62"-51°23'51.88", +1031 m].		Zard-e Sāhel Earthquake: Drying up the palaeo-travertine springs.	?	?	Kāshān (RLSS)	Berberian et al. 2012.

Note on Table 6: Please note that further research is required to constrain the dates and in some cases the events.

~I₀: Approximate equivalent intensity of earthquake.

LLR: Left-lateral oblique reverse fault.

LLSS: Left-lateral strike-slip fault.

Mech: Mechanism of earthquake faulting.

~M_s: Approximate equivalent surface-wave magnitude.

R: Reverse fault.

RLSS: Right-lateral strike-slip fault.

*: The earlier date of AD 224-549 (Berberian & Yeats, 2001) was bracketed on data by Kāmbakhsh-Fard (1994). The present dates are bracketed from new data (Āzamouh, 2009).

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A NEW WRITING SYSTEM DISCOVERED IN 3RD MILLENNIUM BCE IRAN: THE KONAR SANDAL ‘GEOMETRIC’ TABLETS

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Abstract: Four tablets probably written in the second half of the 3rd millennium BCE were recently found in Konar Sandal, an archaeological site in the Halil Rud valley in southeastern Iran. Three of them are bigraphical, with a Linear Elamite inscription and a second inscription in previously unknown signs that are qualified here as ‘Geometric’. The fourth tablet remains enigmatic. Descriptions of the tablets, a study of their signs and semantic structure, and hypotheses concerning their content are given here.

Keywords: Iran, Konar Sandal, Bronze Age, writing system, Linear Elamite, Geometric writing

Four tablets, currently held in the Museum Bagh-e Harandi in Kerman, were recently found in Konar Sandal, a village located in the Halil Rud valley in southeastern Iran (see Pl. 1). Three of them are bigraphical, with Linear Elamite inscriptions (texts B’, C’ and D’²) and additional signs, unknown up to now, that are qualified here as ‘Geometric’³ (texts α , β and γ ⁴); the

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² On the CDLI web site (<http://cdli.ucla.edu/>), the last Linear Elamite text published is referred to as A’.

³ This label seems to be more cautious than the geographic ones, such as ‘eastern script’ (Steinkeller) which is eastern only from a Mesopotamian point of view. The Kermanite label proposed by Vallat could be better, but nothing assures this writing will be found in the future only in Kerman province (even though the local nature or the geographically limited extension of this writing has to be supposed after more than one century of archaeological excavations in Iran). A label writing derived from signs shape (such as geometric/geometrifform or cuneiform) is a stronger definition since writings are mainly identified by signs shape and not by their geographic or chronological extension.

⁴ It was decided here to use a neutral system for designating the Geometric texts, without any geographical or historical reference. As Latin letters were already used for Linear Elamite documents, Greek letters were chosen.

fourth tablet remains enigmatic (see Pl. 2). This last document is considered here as a Linear Elamite text (E'), although this point is far from being resolved since the tablet's few preserved signs do not match fully the known corpus of Linear Elamite signs (texts A to A'; cf. Cuneiform Digital Library Initiative internet site⁵).

Y. Madjidzadeh (Madjidzadeh 2012) proposed to interpret these four documents as a five-stage evolution toward Linear Elamite writing, from 1) α , through 2) β , 3) E', 4) γ / D' and finally 5) B' and C', which show 'the closest similarity' with Linear Elamite. In contrast, it is argued here that these tablets exhibit two different but contemporary systems without any genetic link: Linear Elamite (B', C' and D') and the new 'Geometric' graphical system (α , β and γ).

The fragment bearing the inscription E' was found in 2005 in the entrance of the architectural complex crowning the southern tepe of Konar Sandal⁶ (KSS; geographic coordinates 28°26'58" N, 57°46'43" E). Previously described as a brick fragment, its width (between 3 and 3,5 cm) and the size of its signs (only slightly larger than the other three texts) indicate that it was perhaps the top right-hand or bottom left-hand portion of a large tablet.

After this discovery, a villager gave the tablet (11,5 × 7 × 1,8 cm) bearing the inscriptions γ and D' to the archaeological mission, showing the location in his garden where he found it in 2001. In November/December 2006, trench XV (5 × 5 m; approximate geographic coordinates 28°27'16" N, 57°46'45" E), was opened in this garden, 550 m northward from KSS; tablets α / B' (18 × 10 × 2,2 cm) and β / C' (13,5 × 8,5 × 2,2 cm) were discovered in this excavation at a depth of 1,10 m, near a rectangular bipartite kiln and a piece of an unbaked anepigraphical tablet⁷.

Because three out of these four documents (E', α / B' and β / C') come from regular excavations, there can be little doubt of their authenticity (cf. Lawler 2007).

⁵ <http://cdli.ucla.edu/search/search.pt>; period name: Linear Elamite. For inscriptions X, Y and Z, see Mahboubian 2004: 50-55; for A', *Phoenix Ancient Art Catalog* 2007 n° 1, item n° 47.

⁶ Madjidzadeh and Pittman 2008: 81.

⁷ See Madjidzadeh 2012, for the circumstances of this discovery.

1) Surface examination

All of the signs on the tablets were impressed while the clay was still soft, except perhaps in B', where some stroke crossings do not show the expected configuration if the clay had been still wet (see Pl. 3). Actually some signs are more likely to have been scratched rather than impressed in this inscription.

A close observation of the signs shows that most of them were written in a sequence of strokes, with earlier lines cut by later ones. Several examples of this feature from inscription β are shown in Pl. 4.

α and γ / D' also exhibit imprints of some sort on their surface (Pl. 5). Whether these were clay smoothing prints from a brush, fingerprints left by the scribe while writing or bandage traces cannot be currently determined.

Finally, all the tablets were baked (a kiln was found near α / B', β / C' and γ / D' in trench XV).

2) Signs

The tablets' orientation (how they were held when people wrote and read them) is not as important as the order in which the signs should be written / read. The presentation shown here⁸ (Pl. 6) relies on the orientation of several of the Linear Elamite signs (for example, as \mathbb{H} rather than $\mathbb{H}|$) that are inscribed on vertical supports. Examples of similar signs from Linear Elamite inscriptions C (on a statue), Q (on a silver vase) or V (on a seal) demonstrate how these signs were oriented.

In the Geometric inscriptions α and β , signs are rather regularly distributed between each line (α : 20, 18, 19, 19 and 18; β : 17, 19, 18, 18, 18 and 7 / incomplete line) while γ presents a different pattern, with more signs inscribed in the upper line (19, 14, 13, 14/13 and 4/5 Geometric signs + D': 9 Linear Elamite signs and 2 dividing strokes).

The Geometric writing is represented by 254/256 signs⁹ consisting of 19 different signs (see Pl. 7; α : 94 signs, 9 different; β : 97 signs, 16 different; γ : 63/65 signs, 13 different). The vertical stroke sign (sign H) is not

⁸ Basello 2006 presented γ / D' in an inverted way.

⁹ 60 Geometric signs are clearly visible in γ , but their real number should be between 63 and 65 without the break that damages the two lowest lines.

understood here as a word dividing sign. If the composite dotted signs are supposed to be variants of the dotless ones, there are a total of 13 different signs on the three Geometric text documents¹⁰. Five of these are frequent (square, circle, triangle, grid, and vertical stroke; totalling 198 signs out of 254/256, or approximately 78%), two are uncommon (6 ovals/sign F and 11 inverted U/sign E), two appear only on β and γ (15 lozenges and 5 crosses), two only on β (2 signs K and 3 signs L) and two only on α (6 signs J and 2 signs M/crescents).

The sign distribution among the three documents reveals that seven signs appear on all three tablets (square, circle, triangle, grid, vertical stroke, oval, and inverted U). The dotted signs, the lozenges and the crosses appear only in β and γ , distinguishing clearly these two texts from α . Finally, four signs appear in only one text (signs J and M in α and signs K and L in β). These uncommon signs most likely had a precise and limited value, with the result that they were not needed in every document (see Pl. 8).

The Konar Sandal documents also include Linear Elamite inscriptions B' (6 signs), C' (7 signs and 1 dividing stroke) and D' (9 signs and 2 dividing strokes). The three inscriptions utilize 19 different signs, of which two are unique to this corpus (signs 118 and 208; see Pl. 9). The few preserved signs in E' are similar to Linear Elamite signs (lozenge-shaped sign, dotted stroke) but do not match completely (above all the two top right-hand signs built around a cross). Three hypotheses might be proposed to explain these features:

- E' could be an older or more recent form of Linear Elamite writing;
- perhaps only hapaxes appear in this fragment, while the rest of the tablet had 'good' Linear Elamite signs;
- or E' might be a new and distinct form of writing.

¹⁰ Although only 3 documents (α , β and γ) with Geometric signs are known at present, the limited sign inventory-19 (or 13 if dotted signs are variants) out of 254/256-has to be considered. If Geometric signs constitute a visual system for writing a language, we might hypothesize that each sign could carry a phonetic (syllabic) value.

This characteristic may parallel the phonetic way that the Elamite language, in its earliest known stages, was written with cuneiform. Indeed, when they borrowed cuneiform writing, 'Elamite' scribes seem to have rejected Mesopotamian logograms (Stève 1992: 4-11). Out of 85 different signs present in the Naram-Sin treaty (the most ancient cuneiform Elamite text known), only 6 were logograms (7%), used to name gods Inšušinak, Aba and Sin. This phonetic aspect of the Elamite language writing is later reversed, and the proportion of logograms reaches 68% during the Achaemenid period.

3) Semantic structure

The layout of Geometric signs in α and β seems to follow a sign sequences doubling pattern (see Pls. 10 and 11) in which the signs were inscribed according to boustrophedon¹¹ (the direction of writing or reading changes line after line, from left to right then right to left) and stoichedon (equal sign distribution between each line)¹². Semantic units/words might consequently stretch over two lines.

Because of these sequence repetitions, the use of the boustrophedon principle and the incomplete lowest line in β (probably the end of the text, written from the left to the right), the starting points of both α and β seem to be in the top right-hand corner.

Given the hypothesized writing/reading direction and starting point, repeated sign sequences appear in α and β —two large ones in α (groups A1/A2 and B1/B2; Pl. 10) and six smaller ones in β (groups A1/A2, B1/B2, C1/C2, D1/D2, E1/E2 and F1/F2; Pl. 11). These make up the general semantic structure in each text.

Text α (see Pl. 10) begins with a small group (1) of two or four signs¹³, then group A (24 signs) repeated twice (A1 and A2), then group B1 (21 signs according to the first dividing hypothesis, 19 signs according to the second), then the small group 1, and finally group B2. The semantic structure of α may be summarized as: group 1 / A1 / A2 / B1 / group 1 / B2.

Text β shows a similar pattern (see Pl. 11). According to the first dividing hypothesis, it is organized as: group 1 / A1 / A2 / B1 / O (sign B in signs list) / B2 / C1 / C2 / group 2 / D1 / E1 / group 3 / E2 / D2 / F1 / W (or sign L) / F2. Following the second dividing hypothesis, the semantic sequence would be: group 1 / A1 / O (sign B) / A2 / B1 / B2 / C1 / C2 / group 2 / D1 / E1 / group 3 / E2 / D2 / F1 / W (sign L) / F2.

¹¹ Also used in some Greek, Etruscan, ancient Latin (cf. *Lapis niger*), hieroglyphic Luwian, south Arabian alphabetic and Eastern Island rongo-rongo (inverted boustrophedon) inscriptions. Closer to Konar Sandal in time and space, some Indus inscriptions may present such an organisation (Possehl 2003: 134 and Vidale 2007: 345). Moqaddam (2009: 54) also noticed the boustrophedon system used in Konar Sandal Geometric texts.

¹² Sign numbers per line are approximately similar: 20, 18, 19, 19 and 18 in α ; 17, 19, 18, 18, 18 (and 7) in β . Before starting to write, Konar Sandal scribes probably counted the number of signs they had to write and, depending on the number of lines they wanted to draw, determined how many signs should be written in each line.

¹³ Two group subdivisions may be seen in α and β . Both of them are considered here.

Once this general semantic structure (consisting mainly of double repetitions of sign sequences) is determined in each text, another repetition level emerges inside some sign sequences. This is particularly clear in α (Pl. 12) and perhaps evident in β (Pl. 13). If the α first dividing hypothesis is considered (semantic structure: group 1 / A1 / A2 / B1 / group 1 / B2), sign sequence A is perhaps built around 6 sign subgroups (group 1, a, b, c, d and e) organized as follows: a – b – c – group 1 – a – b – d – a – e. As for sign sequence B, it may be divided into 5 sign subgroups (f, g, h, i and j) organized as follows: f – g – h – f – i – g – j. The α semantic structure could be consequently reformulated as: group 1 / a – b – c – group 1 – a – b – d – a – e (A1) / a – b – c – group 1 – a – b – d – a – e (A2) / f – g – h – f – i – g – j (B1) / group 1 / f – g – h – f – i – g – j (B2).

Among these sign subgroups, a, a-b, f and g probably corresponded to coherent semantic units (such as words?).

γ , as previously mentioned, does not have the same pattern of repetitions, so it cannot be currently determined if it was written in boustrophedon. From the lowest line where the last Geometric signs were probably inscribed from right to left (before the three small Linear Elamite sequences composing D'), if the boustrophedon principle was used, the Geometric text should, as in α and β , start in the tablet's top right-hand corner.

Several γ sign sequences were also found in α and β , such as OΔIOXO (in the second line of γ and in the first line of β), I□OIΔ□I (written in γ and α first lines) and a few other less important examples. Some short sign sequences (no more than 3 signs) repeated twice also appear in γ (IΔI: first and fourth lines; ◇□III or □III◇: third line); these are probably not significant as they do not correspond to any coherent semantic unit.

Between Geometric inscriptions α , β and γ , β and γ differ from α due to the tablets' shape and size and the signs that are present (dotted signs, crosses and lozenges). The formal similarities between β and γ may be interpreted as indicating a common writing epoch or even production by the same scribe. In semantic structure (and perhaps the meaning), α and β differ from γ through the sign sequences doubling pattern.

Two points are worth noting when comparing the Konar Sandal Linear Elamite inscriptions B', C' and D' with the 27 other Linear Elamite inscriptions currently known:

- the Konar Sandal inscriptions are relatively short (6 signs in B', $4 + 3 = 7$ signs in C' and $4 + 3 + 2 = 9$ signs in D'); among other Linear Elamite inscriptions only texts S (5/6 signs) and V (3 signs) are so small¹⁴;
- for such brief inscriptions, dividing strokes are quite frequent (1 in C'; 2 in D'), defining 2 sequences in C' (3 and 4 signs) and 3 in D' (2, 3 and 4 signs respectively). These very short sign sequences may be compared with texts S and V as previously mentioned, but also with Linear Elamite documents D (where the vertical stroke is used 7 times) and Q (vertical stroke used 8 times) in which several sign sequences (signs between two dividing strokes) were made up of only 2 or 3 signs¹⁵.

4) Reflections about the content

The Geometric and Linear Elamite inscriptions α /B', β /C' and γ /D' were found together in trench XV and consequently belong to a unique and possibly private archive. They probably did not record any accounting/economic information since they seemingly did not contain any numeral notation rendered by an additive numeration system as no sign is repeated twice in succession¹⁶.

Some insight into the Linear Elamite writing system may be gained by considering text V, an 'Indus' related seal¹⁷ with three signs. As the main information a seal has to carry is the owner's identity, his/her name was probably rendered on seal V with only three signs. Numerous small sign sequences in Linear Elamite texts (as in S, B', C' and D') could actually be anthroponymical notations. According to this hypothesis, three names would be recorded in D', two in C' and maybe only one in B'. In any case, B', C' and D' are too short to be translations of α , β and γ .

¹⁴ Texts P (7 signs) and T (4 signs) cannot be considered here since these are fragmentary documents.

¹⁵ The Konar Sandal Linear Elamite inscriptions (B', C', D' and E') are discussed in more detail, among others, in Desset 2012: 93-127.

¹⁶ For example, in a decimal additive numeration system, 53 would be expressed by 5 signs meaning 10 and 3 signs meaning 1. Basello (2006: 3) suggested interpreting some of the Geometric signs according to a positional numeration system working with the number of strokes present in each sign (cross=2; triangle=3; square/lozenge=4; grid=6). This hypothesis seems to me very unlikely in the case of α , β and γ .

¹⁷ Winkelmann 1999.

The types of texts usually kept in Mesopotamian private archives are contracts (records of sales, marriages, etc.), in which the names of witnesses to the transaction frequently appear. If the three tablets found in trench XV were part of a private archive, as supposed above, the Linear Elamite inscriptions B', C' and D' might record the names of persons involved in a contract or the names of witnesses to the agreement inscribed in a different writing system, representing a kind of signature used as a substitute for a sealing.

As for the Geometric inscriptions, their nature remains uncertain. If they represent a coherent writing system, the limited number of signs currently known (19 out of 254/256 attested signs) probably implies phonetic notation and consequently a link with one (or several) language(s)¹⁸. If Kerman province was included in the ancient geographic or political entity known in the cuneiform texts as Marhaši/Parahšum¹⁹, then Marhašean onomastics would be a possible starting point to determine the language(s) spoken during the 3rd millennium BCE in the current Kerman province and to decipher the Konar Sandal Geometric and Linear Elamite texts. Unfortunately, as far as we know, Marhašean onomastics seem to be multilingual since the anthroponyms of people said to come from Marhaši in Suso-Mesopotamian cuneiform texts were interpreted as 'Elamite', Akkadian, Sumerian and Hurroid²⁰. Several languages have to be hypothesized behind the Konar Sandal inscriptions, a very general and vague basis for decipherment. From our experience with Proto-Elamite and Linear Elamite writings, which have been known since the beginning of the 20th century but are still currently undeciphered, it is difficult to see how this new graphic system can be translated as long as only three Geometric inscriptions (α , β and γ) are available.

5) Dating and connection with Susian Linear Elamite texts

No thermoluminescence dating has been performed on the baked clay tablets. Tablet E' comes from the upper layers of Konar Sandal South (phase 2), which is a unique architectural complex dated to the third quarter

¹⁸ Links between writing and language are not necessary, above all if the semantic field dealt with by writing is limited (Damerow 2006: 1-5).

¹⁹ As firstly proposed by Steinkeller 1982; contra Francfort and Tremblay 2010.

²⁰ Steinkeller 1982: 262, Zadok 1984: 52 and 63, 1987: 15 and 1991: 229 and Francfort and Tremblay 2010: 172-184. Interestingly, Glassner (2005: 12 and 14) has suggested that some Marhašean anthroponyms might be linked to 'une langue inconnue'.

of the 3rd millennium BCE²¹. α/B' , β/C' and γ/D' tablets were excavated in trench XV, at a depth of 1,10 m under the current surface, and were associated with both Konar Sandal South red buff on red ware (\approx middle of the 3rd millennium BCE) and Konar Sandal North plain buff on buff ware (\approx end of the 3rd millennium BCE)²². Consequently, the second half of the 3rd millennium BCE appears the most suitable dating for the four Konar Sandal documents²³.

Given this dating, the Konar Sandal Linear Elamite texts (B' , C' , D' and E') are probably older than the Puzur-Inšušinak Linear Elamite inscriptions from Susa (A, B, C, E, F, G, H, I, P, U and perhaps D), which were most likely written circa 2100-2000 BCE²⁴. The Susian Linear Elamite texts not attributable to Puzur-Inšušinak (J, K, L, M, N, R and T) cannot be precisely dated at this time. Conservatively, the era of Linear Elamite writing use should probably be dated between the middle of the 3rd millennium BCE and the beginning of the second millennium and not only to the epoch of Puzur-Inšušinak.

6) Conclusion

After the disappearance of Proto-Elamite writing sometime in the first few centuries of the 3rd millennium BCE, the practice of writing was seemingly lost on the Iranian plateau. In the second half of the 3rd millennium

²¹ Five ¹⁴C dates are available for Konar Sandal South layers (BETA 207293 and BETA 207294 from trench III and BETA 207285, BETA 207286 and BETA 207287 from the stratigraphic step trench), ranging mainly from the 25th to the 23rd century BCE (Madjidzadeh and Pittman 2008: 77 and 88).

²² Madjidzadeh 2012. Following the discovery of the three tablets in the farmer's yard, Madjidzadeh asked Massimo Vidale to look at the pottery unearthed in the same layers. Vidale spent a few minutes examining part of the pottery collected with the tablets, washed and laid to dry near the edge of the trench. His preliminary impression was that the ceramics from the site showed many distinguishing features from the second half of the 3rd millennium BCE: painted decoration seemed very limited or absent, and there was an extensive use of potter's wheel, evident in the frequency of a type of thin-walled, elongated beaker. In general, Vidale's impression was that the pottery associated with the tablets was chronologically bracketed between the material spread on the surface of Konar Sandal South and that visible on the surface of Konar Sandal North.

²³ Madjidzadeh (2012), in contrast, prefers to attribute these tablets to the first half of the 3rd millennium BCE.

²⁴ Puzur-Inšušinak was probably Ur-Nammu's contemporary (Wilcke 1987: 109-111), living around 2100 BCE in the middle chronology (Potts 1999: 122) or 2000 BCE according to the ultra-low one (Stève, Vallat and Gasche 2002: col. 428-430).

BCE, Linear Elamite writing (currently attested at Susa, in the Marv Dasht plain, and at Shahdad and Konar Sandal) and the Geometric graphic system appeared in southern Iran. These writing systems appear to be completely independent from cuneiform writing, which diffused into southwestern Iran from Mesopotamia with the akkadian annexation of Susa in the last quarter of the 3rd millennium BCE (Pls. 14 and 15). Finally, Indus seals and sealings bearing Harappan signs have occasionally been excavated between Pakistan and Mesopotamia (Pl. 14). Contrary to the Indus and cuneiform writings, which diffused throughout much of the Near East, Linear Elamite and Geometric writings show a more restricted distribution.

In Iran, the second half of the 3rd millennium BCE is characterized by creative development in writing systems, with two graphic systems (and corresponding grammatical conventions) being locally invented without any apparent genetic connection with any system currently known. This differentiation stage ended with the introduction of cuneiform writing, first in Susiana and then in Fars. This newly introduced system soon established itself as the only means of graphic notation until the adoption, much later, of other systems developed out of the Iranian plateau, the Aramaic and Arabic alphabets (Pl. 16).

On the Iranian plateau, the 3rd millennium BCE represents the culmination of the first great urbanization cycle that started in this part of the world with the neolithisation process in the 8th and 7th millennia BCE. While presumably rich in thoughts and immaterial realizations, this epoch remain enigmatic. Understanding the locally invented writing systems, Linear Elamite and Geometric writing, would offer significant insights into aspects of ancient society generally invisible to archaeology, such as language, laws, social relations and ideologies. With continued study and the discovery of additional texts, such decipherment may well be possible some day.

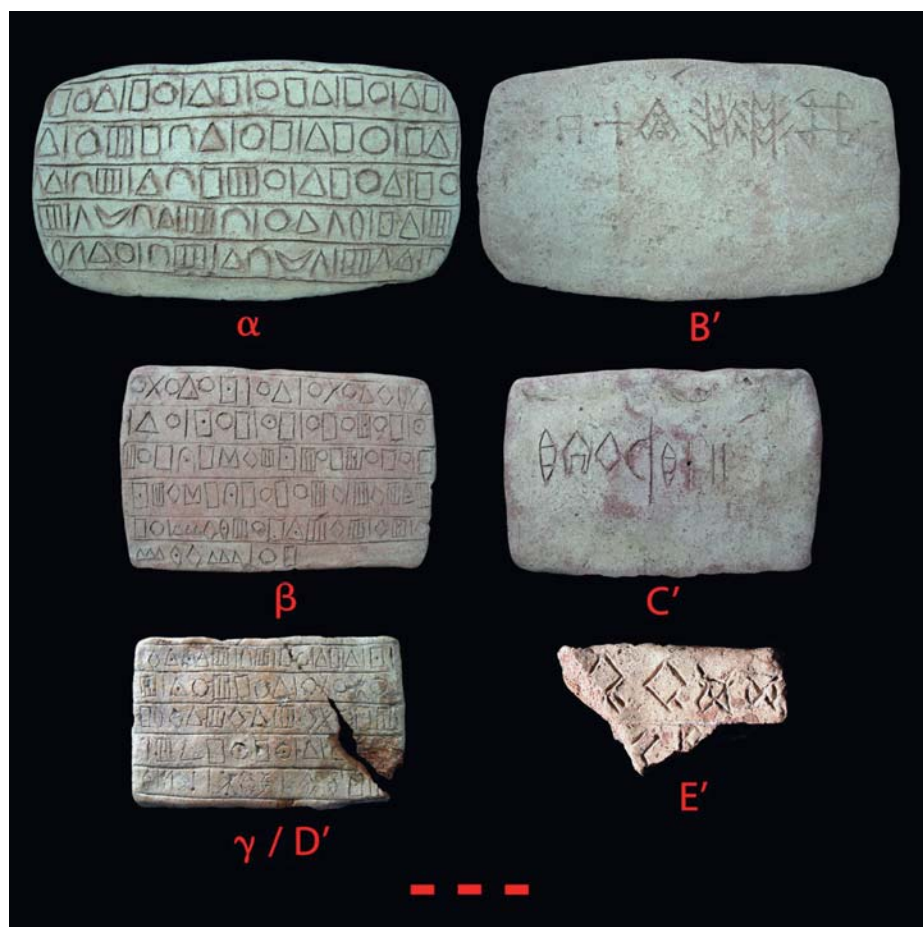
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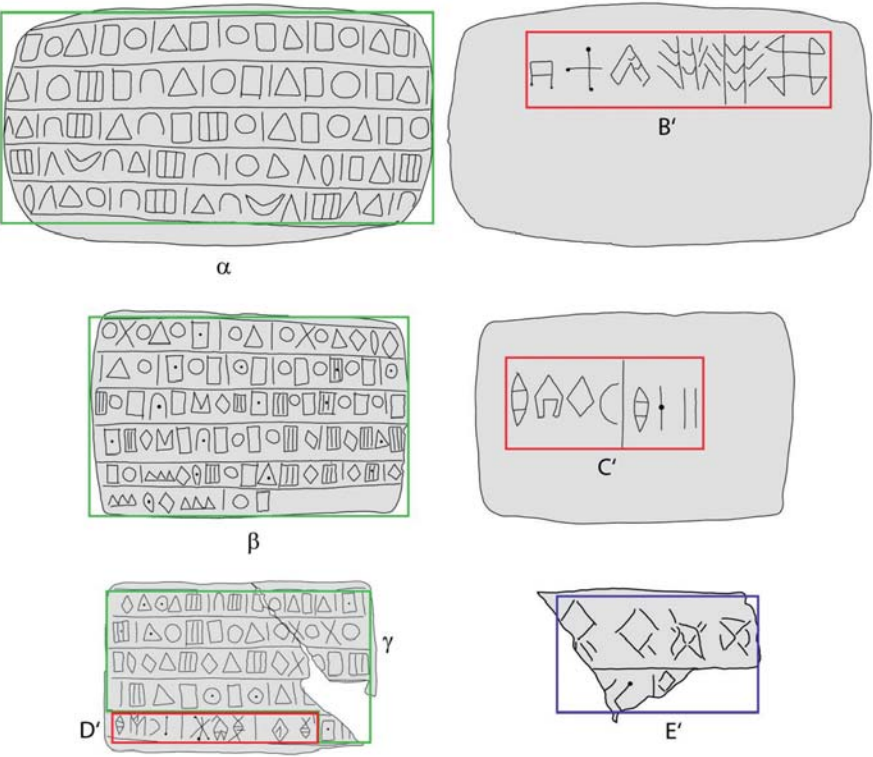
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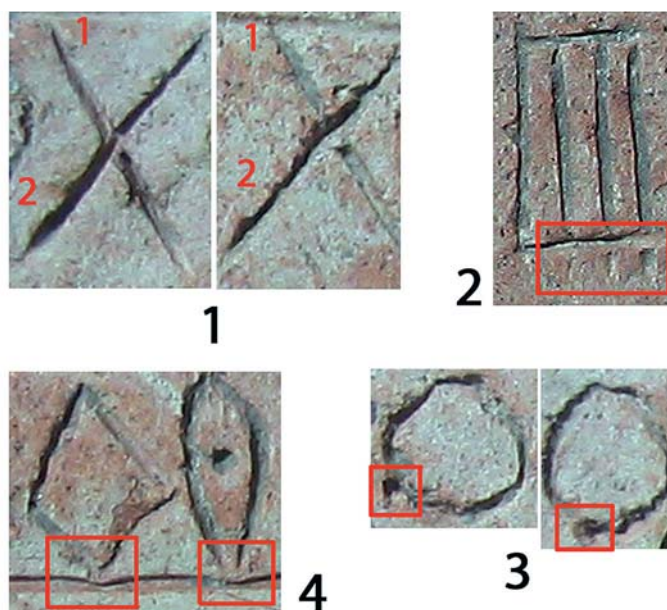
Pl. 1. Konar Sandal tablets.



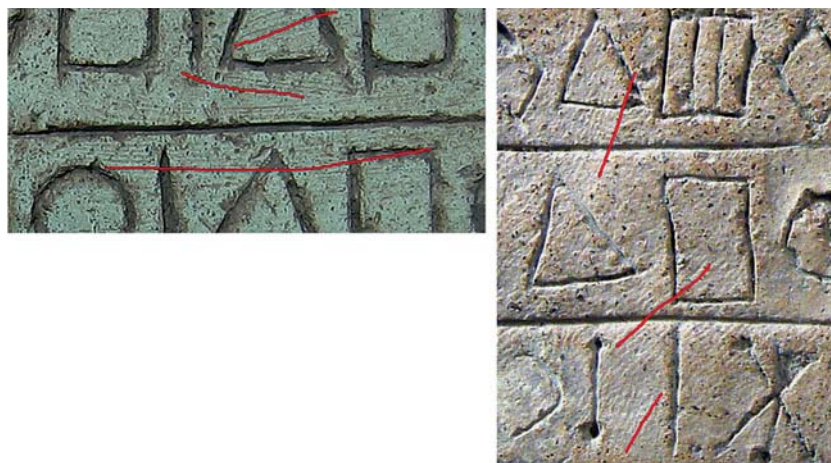
Pl. 2. in green Geometric writing; in red Linear Elamite writing;
in blue possible Linear Elamite writing.



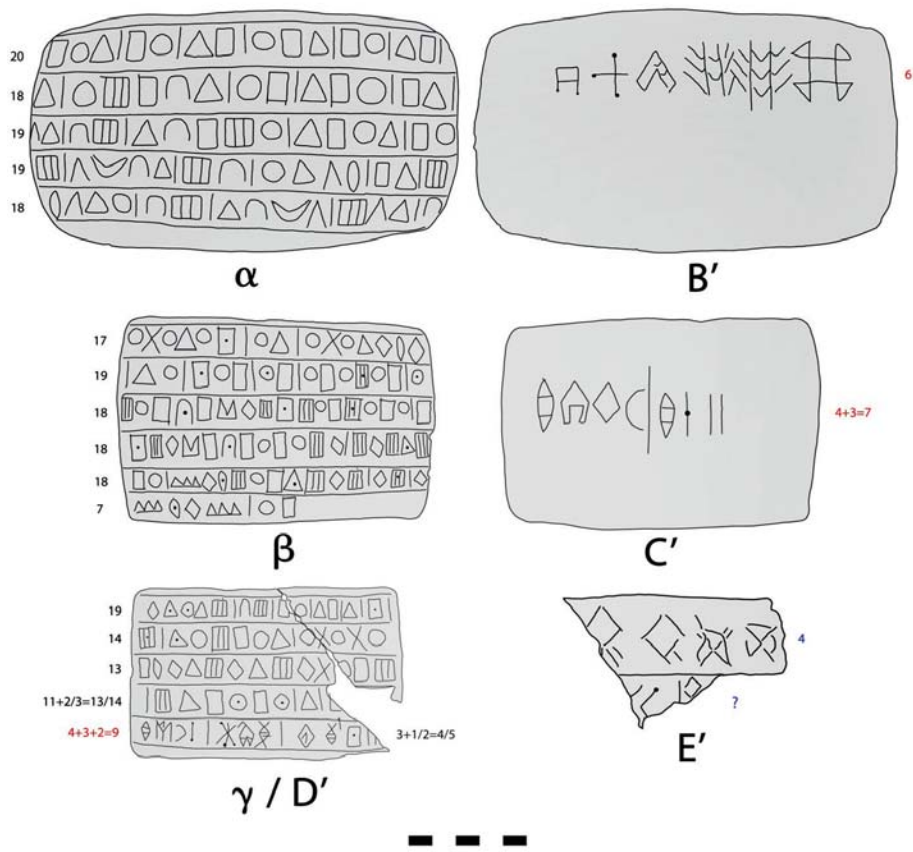
Pl. 3. on the left, Linear Elamite sign impressed in C';
on the right, Linear Elamite signs scratched in B'.























Pl. 4. details in β ; Pl. 4.4: signs were impressed after the separation stroke between the lines was drawn.



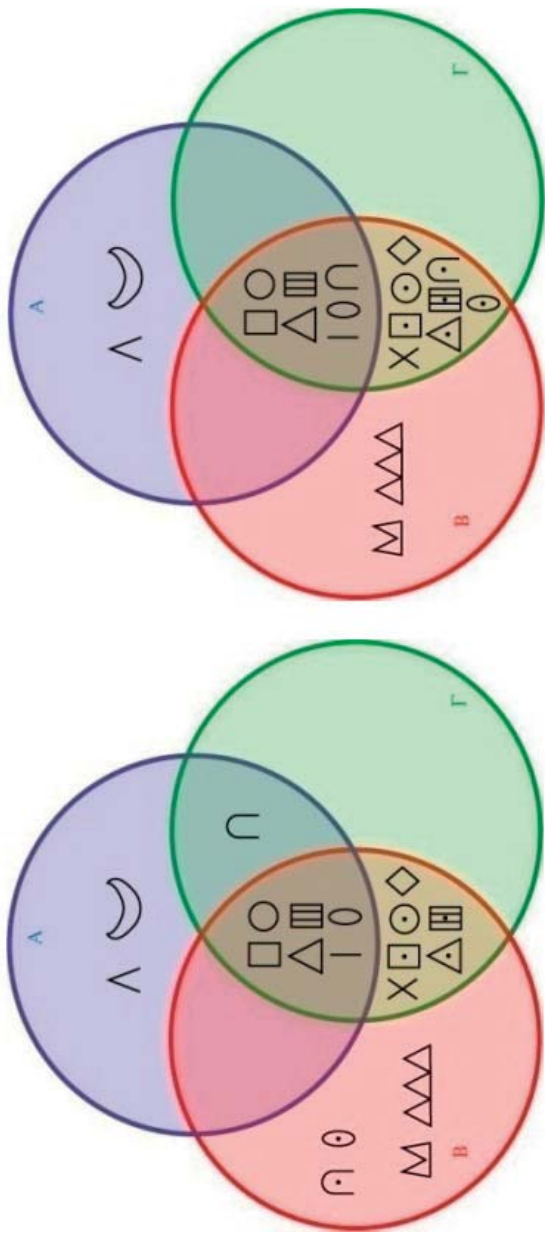
Pl. 5. visible prints in α and γ / D'.



Pl. 6. Konar Sandal documents, showing number of signs per line.

		alpha	beta	gamma	total
A		14	15	7	36
A'		0	4	2	6
B		12	20	6	38
B'		0	2	3	5
C		18	4	8	30
C'		0	2	2	4
D		8	11	7	26
D'		0	3	1	4
E		8	0	1	9
E'		0	2	0	2
F		2	1	1	4
F'		0	2	0	2
G		0	2	3	5
H		24	13	12	49
I		0	11	4	15
J		6	0	0	6
K		0	2	0	2
L		0	3	0	3
M		2	0	0	2
		0	0	3+3/5	6/8
		94	97	63/65	254/256

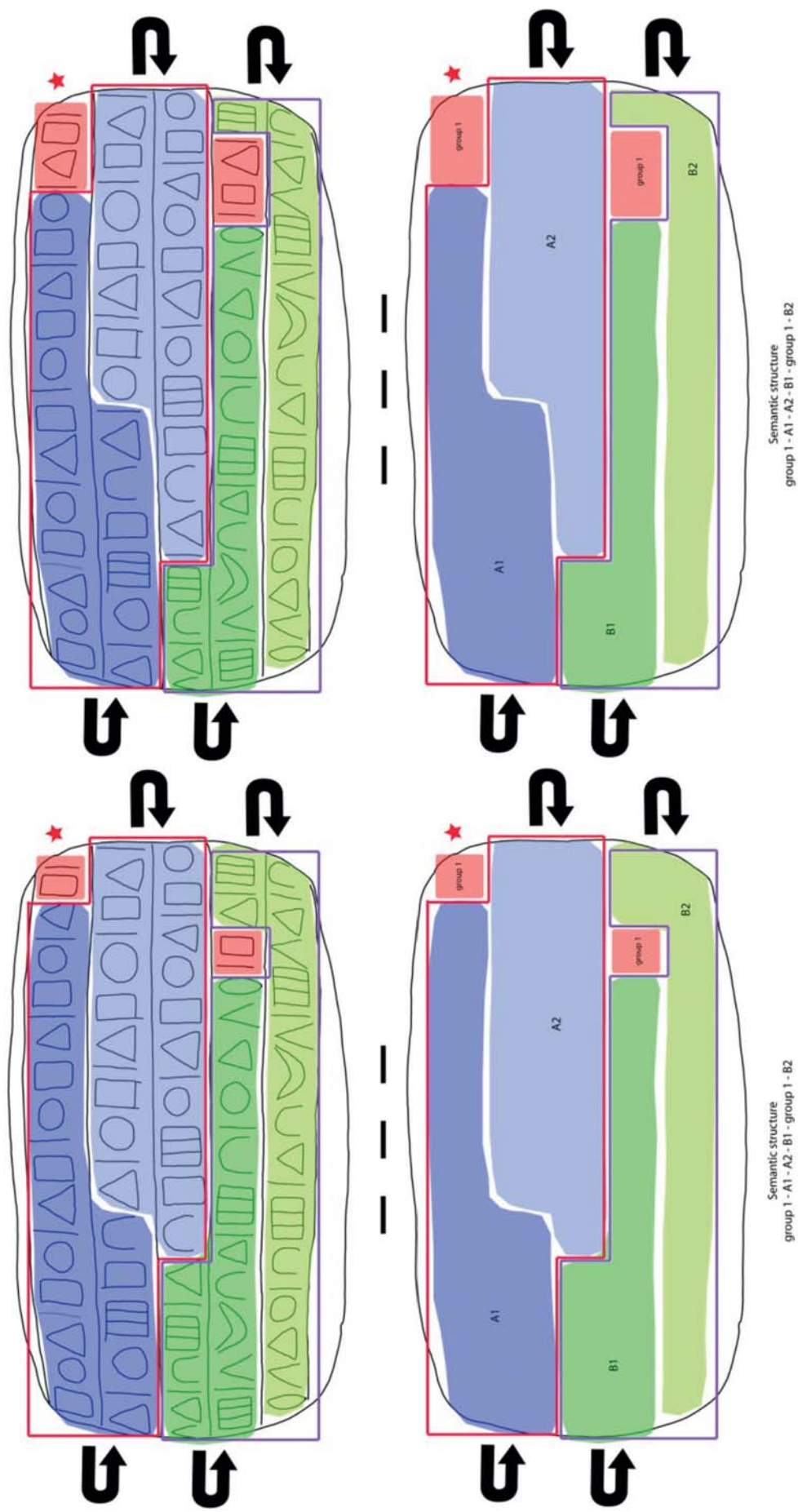
Pl. 7. Geometric signs list.



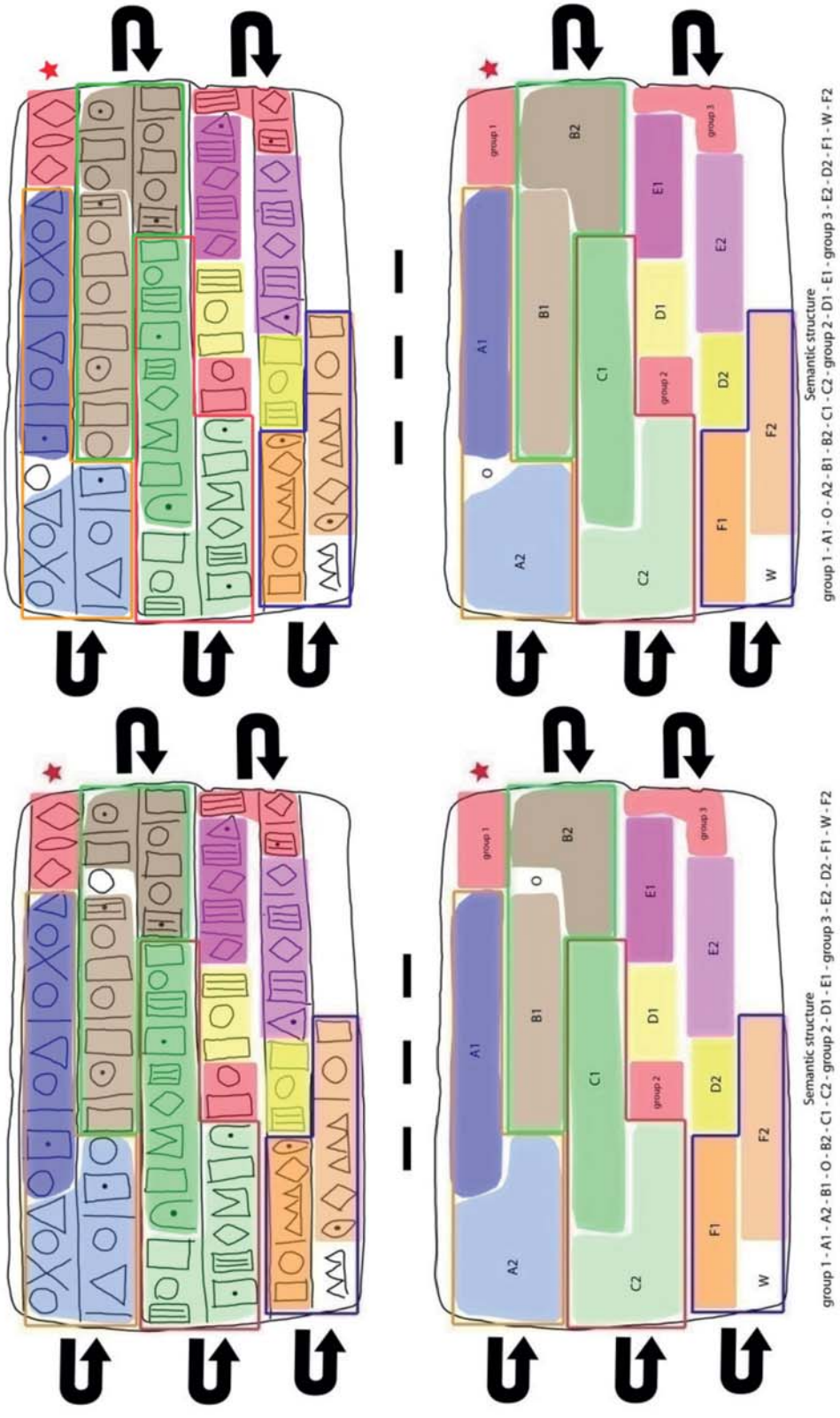
Pl. 8. on the left, 'real' Geometric sign distribution between α (blue), β (red) and γ (green); on the right, 'corrected' distribution.

	sign 83 complete matching : A, B, C, D, F, G, H, H2, I, K, P, R, U, V partial matching : W, Y, Z		sign 182 complete matching : A, D, E, K, M (?), P partial matching : none
	sign 178 complete matching : A' partial matching : I, Q, T, X, Z		sign 146 complete matching : none partial matching : L (?), W (?)
	sign 117 complete matching : none partial matching : A, B, D, F, G, H, I, L, N, O, Q, W		sign 132 (cf sign 133) complete matching : A, C, F, G, H, I, K partial matching : none
	sign 208 FIRST APPEARANCE		sign 171 complete matching : F, I, M, W, Y, Z, A' partial matching : K
	sign 102 complete matching : F, G, H, H2, X, Y partial matching : none		sign 186 complete matching : none partial matching : A, D, F, G, H, J, Q, U, W, Z, A'
	sign 75 complete matching : S partial matching : A, B, C, D, E, F, G, H, I, J, K, L, N, P, Q, U, V, W, Y, Z		sign 32 complete matching : none partial matching : B, I, O, W, A'
	sign 118 FIRST APPEARANCE		sign 11 complete matching : none partial matching : D, S, V, W, sign 75 (?)
	sign 1 complete matching : A, B, D, E, F, G, H, H2, I, J, K, L, M, N, Q, R, T, U, X, A' partial matching : C, O, B, W, Y, Z		sign 21 complete matching : none partial matching : E, G, I, K, W, X, Y, Z
	sign 133 (cf sign 132) complete matching : B, E, G, J, U partial matching : none		sign 56 complete matching : none partial matching : B, D, I, O, V
	sign 170 complete matching : D, F, G, Q partial matching : none		dividing sign complete matching : A, B, C, D, E, F, G, H, H2, I, J, Q, S, U, Y, Z, A' partial matching : none

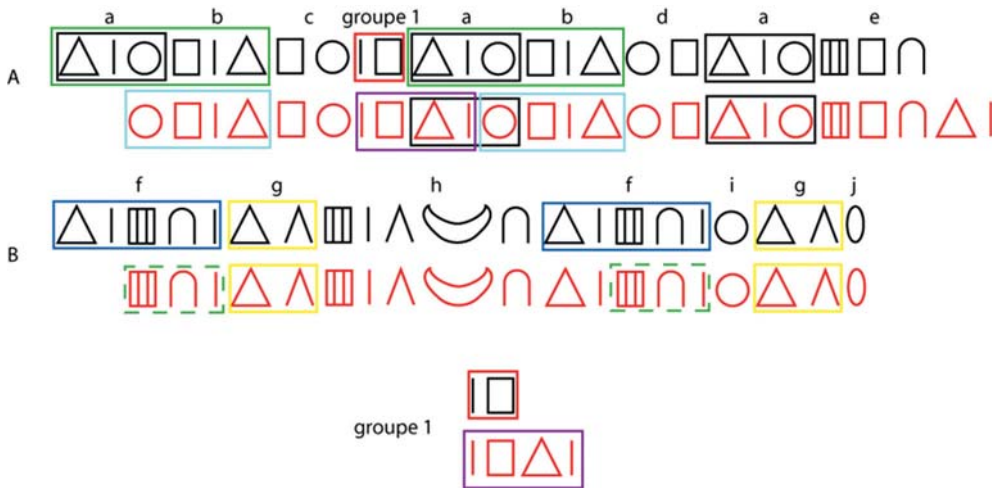
Pl. 9. Konar Sandal Linear Elamite signs list and comparisons with other Linear Elamite documents (sign numbers refer to the Linear Elamite signs list published in Desset 2012: fig. 32).



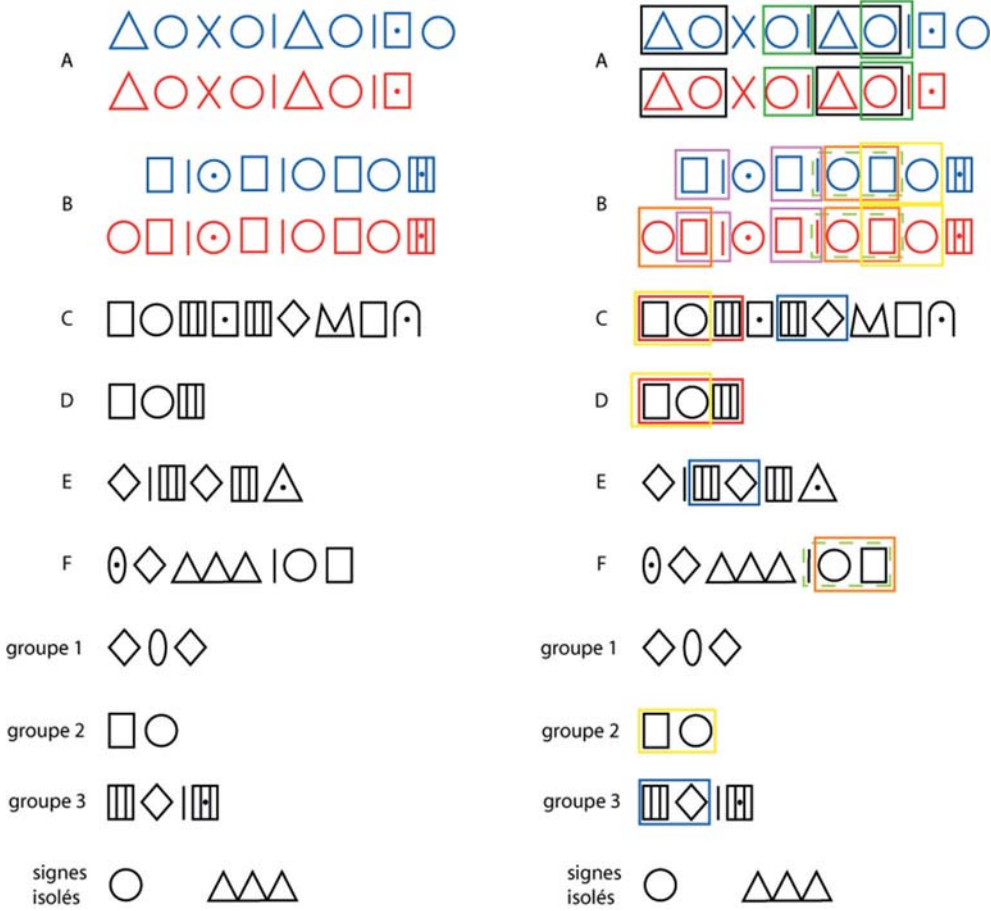
Pl. 10. α semantic structure with sign groups showing double repetitions. On the left, first dividing hypothesis; on the right, second dividing hypothesis.



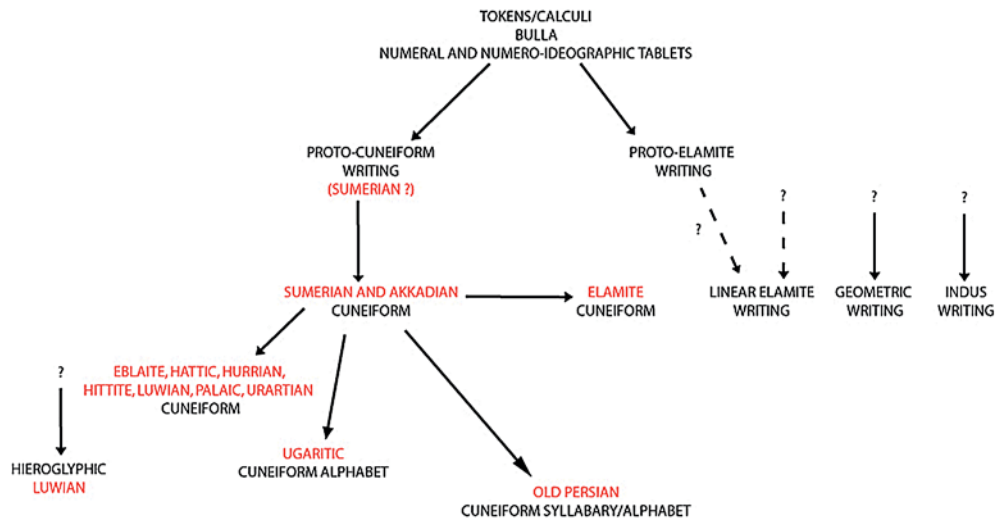
Pl. 11. β semantic structure with sign groups showing double repetitions. On the left, first dividing hypothesis; on the right, second dividing hypothesis.



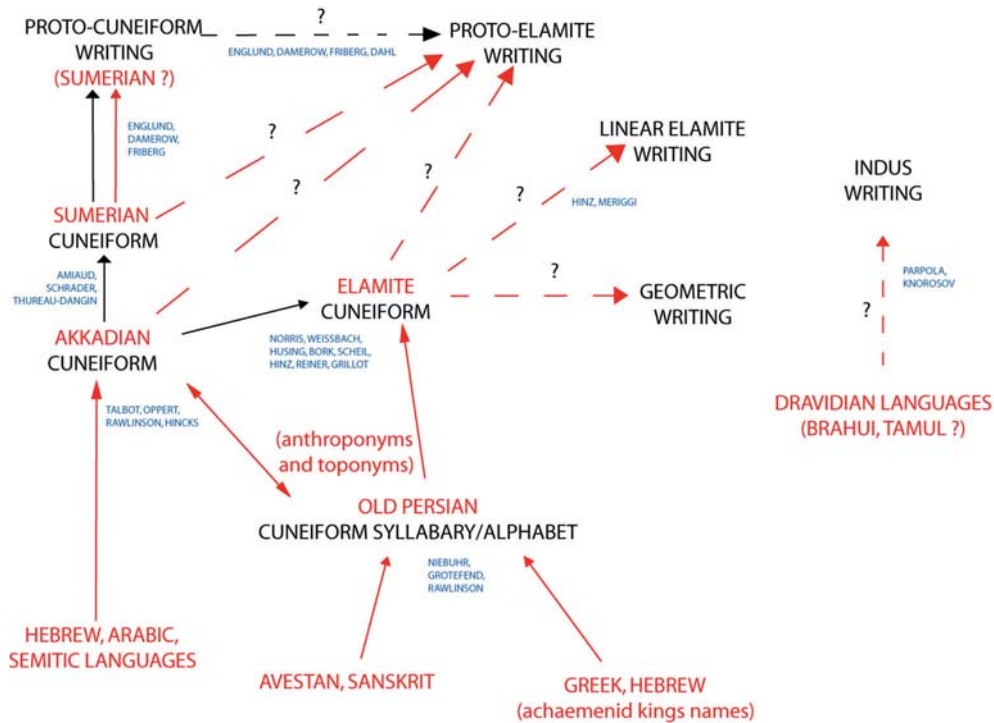
Pl. 12. α subgroups analysis (to be read from left to right). In black, according to the first dividing hypothesis; in red, according to the second dividing hypothesis. Probable subgroups are suggested in each sequence.



Pl. 13. β subgroups analysis (to be read from left to right). In black, according to the first dividing hypothesis; in red, according to the second dividing hypothesis. On the right, possible subgroups repetitions are suggested.



Pl. 15. Near Eastern writings genetic connections (in black, writings; in red, languages). Proto-Elamite, Linear Elamite, Geometric and Indus writings (and ‘hieroglyphs’ used to write Luwian from the second half of the 2nd millennium BCE) do not belong to the cuneiform family (on the relations between Proto-Cuneiform and Proto-Elamite writings, see Desset 2012: 63-81).



Pl. 16. schematic history of Near Eastern writings decipherment (the red arrows represent decipherment through language approach; the black arrows represent decipherment through writing approach) and names of the main scholars involved (in blue).

With the discovery of the Konar Sandal Geometric graphic system, four Near Eastern writing systems are undeciphered-Proto-Elamite, Linear Elamite, Geometric and Indus writings. Concerning Proto-Elamite tablets, comparisons with Proto-Cuneiform (Dahl 2005a: 4-5 and 2005b: 86-98 and 113) will not probably bring any more information. Hypotheses built on languages such as Elamite, Akkadian or Sumerian may help in their decipherment and above all in the understanding of their non-numerical (anthroponymical) signs-strings. As for Linear Elamite and Geometric writings, our rather limited knowledge of the old Elamite language likely constitutes the only way (with Akkadian language for some Linear Elamite inscriptions) toward their decipherment. Finally, if Indus writing was not transcribing known or knowable language(s) such as Dravidian, the likelihood of its decipherment would be low or impossible (Parpola 2005: 46).

PRELIMINARY REPORT ON THE SOUNDINGS AT TEPE DAMGHANI SABZEVAR, SPRING 2008

BY

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Abstract: A season of archaeological sounding at Tepe Damghani and survey of the surrounding area was carried out by a joint Irano-French expedition in the Spring of 2008. A multidisciplinary approach was adopted consisting of archaeological, geomorphological, archaeobotanical, archaeozoological, and anthropological studies for better understanding of the different aspects of the Bronze and Iron Age cultures at the site. Data-gathering was made possible through a small trial trench (Tr. 1) and cleaning of a large section which was exposed by road construction. Archaeological analysis of the materials from a sounding at Tepe Damghani and the survey of the neighbouring sites (Tepe Ferizi and Mirabad sites) show strong cultural links with Central Asia from the late Chalcolithic to the late Bronze Age. Iron Age material can only be found in the plough zone, but not *in situ*. Typological analysis of pottery, confirmed by various radiocarbon dates, suggest that the main occupation at Tr. 1 belongs to a period contemporary with Namazga IV (Early Bronze Age) in the Central Asian chronology. The discovery of various chert and ophiolitic artifacts indicate exploitation of local resources and the presence of chipping industry at the site during the Bronze Age, but no workshops were uncovered. Study of animal bones, wood charcoals, as well as charred seeds and fruit remains has provided us with invaluable information on subsistence pattern and plant economy of the ancient inhabitants of Tepe Damghani and allows us to answer various questions regarding the ancient water management and the exploitation and use of local faunal and floral resources.

Keywords: Iran, Khorassan, Sabzevar Plain, Tepe Damghani, Central Asia, Bronze Age, Iron Ages

Introduction

Due to the extremely uneven archaeological coverage of the territory of Iran, our knowledge of the prehistoric periods in northeastern Iran in particular, and the province of Khorassan in general, is piecemeal. Most of archaeological activities have been concentrated in the west, southwest and the central regions of the Iranian Plateau, while the region of Khorassan in the northeast remained largely neglected and is still a relatively 'blank spot' on the archaeological map of Iran. The slowly accomplished evidence from a few excavated sites and surveyed areas still have not given researchers a clear image of historical evolution and devolution of this region.

Despite the limited archaeological fieldwork in modern Khorassan, the northern part of "Greater Khorassan", much of which nowadays lies in Turkmenistan, has been more active in terms of archaeological research. In this region, excavations at various sites of the Neolithic, Chalcolithic, Bronze and Iron Ages (e.g., Anau, Namazga-depe, Altyn-depe, Ulug-depe) as well as sites of the historical period (e.g., at Nisa, the first capital of the Parthians), have provided us with evidence of a long sequence from the Neolithic to the arrival of Islam.

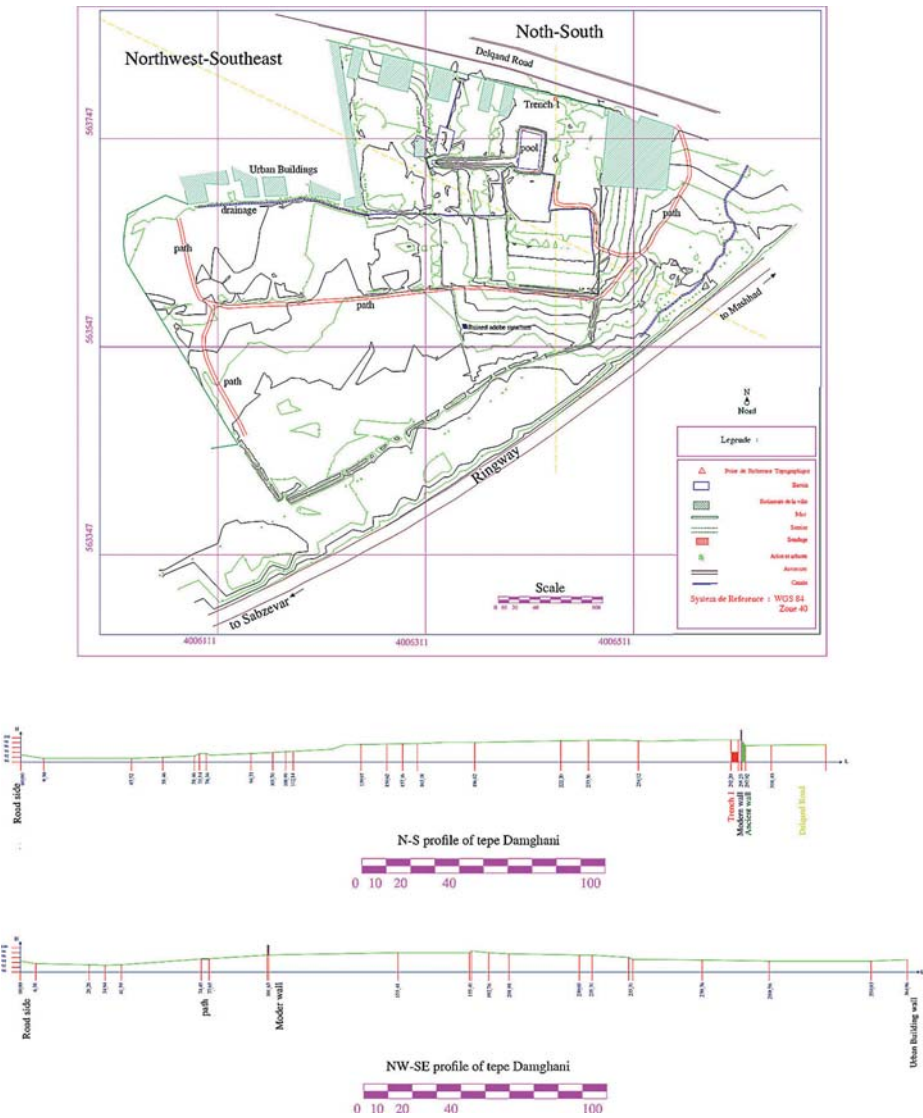
Fortunately, few archaeological projects have recently begun on prehistoric sites of the southern foothills of the Kopet-Dagh Mountains to the north of Iranian Khorassan. These studies are gradually projecting a clearer picture of the ancient past of the region. Given the lack of stratified sites and settlements in the region, however, it is obvious that without a chronological framework for this area, the well-known sequence of the northern foothills of the Kopet-Dagh in southern Turkmenistan will have to be used for study of recovered cultures in the southern foothills of this mountain range. It is hoped that in the near future, the expansion of archaeological fieldwork in the region will lead to the compilation of a particular periodization of ancient sites of Khorassan. With this in hand, we will not only be able to investigate the independent development of societies in this region, but also come to understand the cultures of this territory in between the two cultural zones of Central Asia and the Iranian Plateau. To that end, the Joint Irano-French expedition began its fieldwork at Tepe Damghani in the spring of 2008 with the excavation of one sounding and the cleaning of a stratigraphic section, leading to the identification of part of the prehistoric sequence of the Sabzevar Plain.



Map 1. Location of Sabzevar township in NE Iran.

Tepe Damghani

Tepe Damghani lies to the southeast of the city of Sabzevar in the province of Khorassan-e Razavi (Map 1). The mound is 2-3 meters higher than the surrounding plain on the north and approximately 5 meters above in the south. During the course of constructing the Delqand Road, the northern half of the mound was largely destroyed and a cut of approximately 2 meters in elevation was created in this part, in which the sequence of architectural layers and ancient occupations can easily be observed. Moreover, on the remaining surface of the southern half of the mound, a large pool of water and several hectares of cropland have been created which have been plotted, ploughed and irrigated continuously, disturbing the original topography of the mound and the upper layers (Pl. 1, Map 2). The remaining part of the mound has been separated from the surrounding land by a modern brick-wall, 2.5 meters in height to enclose agricultural plots. To the north



Map 2. Contour map and profile view of Tepe Damghani.

of the brick-wall, Delqand Road stretches from east to west, enclosing the main part of the mound.

Having examined various parts of the mound, a point at the extreme north, where evidently the thickness of the ancient layers were greater compared to other points on the mound, was selected as the best location for opening a test trench (Trench 1). This point was located in the northern parts of the ploughed lands, in the middle of an agricultural path that had not been ploughed or irrigated (Pl. 2). In the resulting section cut from construction of Delqand Road to the north of the brick-wall, the cultural layers and architectural remains from prehistoric periods are visible (Pl. 3). Nevertheless, due to the fact that this section-cut is neighboring to the south with Trench 1, and the northward extension of archaeological layers observed in the trench, cleaning this section-cut provided a convenient opportunity to review and verify the stratigraphy of Trench 1.

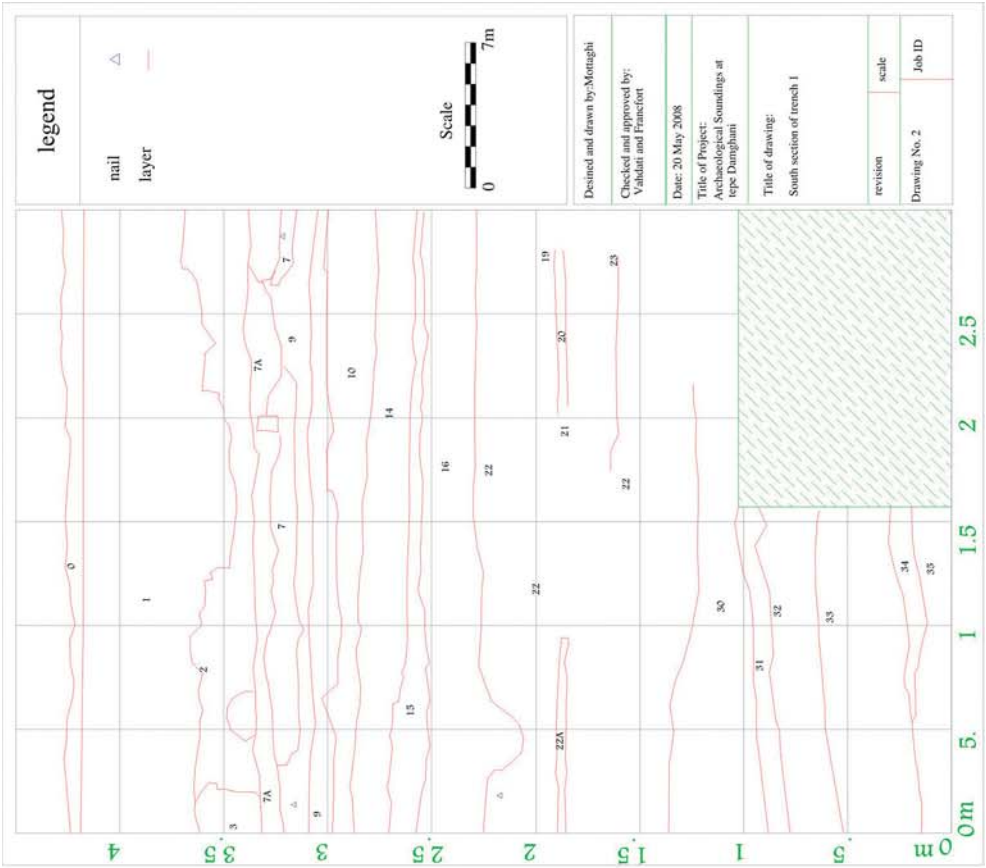
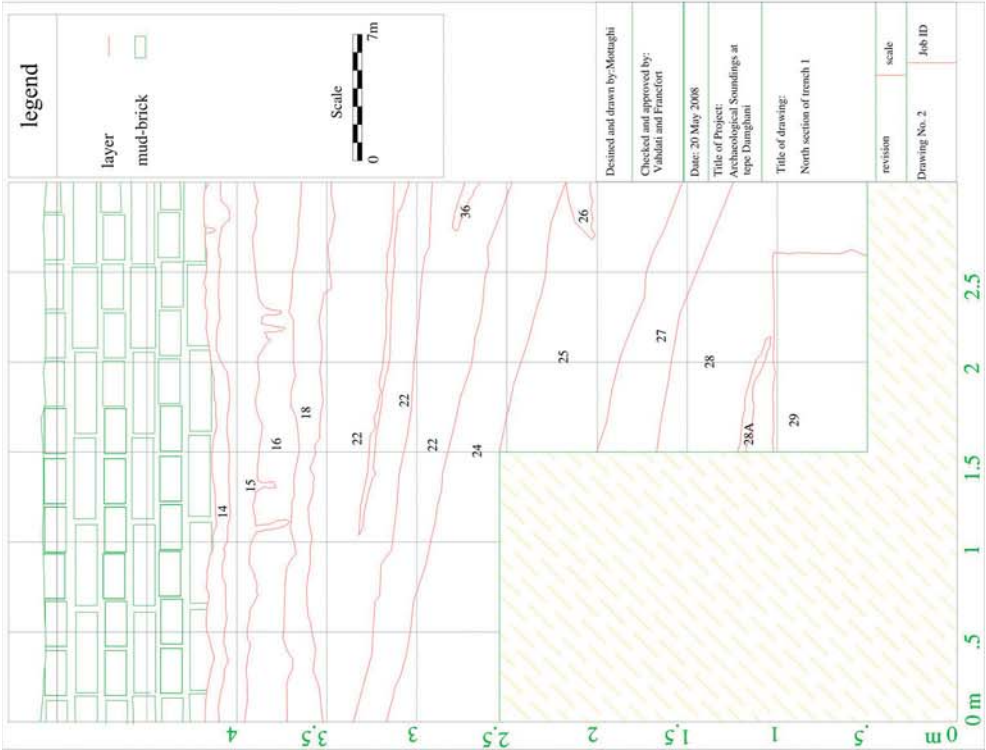
Trench 1

In this first season of excavation, one 3 × 3 meter test trench was opened and excavated to a depth of approximately 5 meters below the present surface of the mound (see Map 2). In the excavation of this trench, 43 stratigraphic units were distinguished, which after closer examination were separated into 4 construction phases and 6 occupation levels.

The surface layer was a compact and beaten earth, resulting from continuous traffic of tractors. Beneath the surface layer was a plow-disturbed layer whose materials were churned up and down during past years of repeated plowing of the ground. Underneath this layer there is an alluvial deposit mixed with pieces of pottery, which is possibly an indicator of flooding in the area.

At a depth of 65 cm, a wall was discovered running in a line from NW to SE (Wall no.1, SU 12). The wall is constructed with large rectangular mud-bricks measuring 45x25x12 cm of which 6 rows are preserved: a course of two bricks in width alternating with a course of four bricks in length. In the NE corner of the Trench another wall was found (Wall no. 2, SU 14) that is perpendicular to wall no.1. After abandonment of these spaces and the walls had collapsed, a grave of a neonate (Grave no. 1, SU 10), was dug directly on top of one of these walls.

At the foot of wall no. 2, a leveled floor (SU 26) and an occupation floor (SU 28) were observed. Above these stratigraphic units, the stratigraphic



Map 3. Section (right) and N section (left) of Trench 1 (numbers indicate to Stratigraphical Units).

units 00 to 28 consisted of abandonment layers (SU 2, 5) and ash layers including a quantity of charcoal fragments and fired mud bricks (SU 03, 09, 15, 21-22, 24). Several occupation layers also were observed (SU 07, 23, 28) that continued to a depth of 1.5 meters (Map 3).

Between stratigraphic unit 29 and the beginning of units 33-34 (the beginning of possible cultivated soils resembling lower stratigraphic units, namely SU 36, 37 and 40), no structures were identified. Moreover, it is possible that this area was flooded several times as indicated by superimposition of fine layers of sand and silt. A thick ashy layer (SU 29) and an occupation floor (SU 31-32) linked with a structure were excavated, which could possibly be a hearth (SU 35) located in the SE corner of the trench. In lower parts of the trench, other layers appeared that were possibly occupational layers (SU 38, 40-41). All of the occupation layers were located in the SE corner of the trench. In this part of the trench the depth reached 4.90 cm.

The stratigraphic units 42 and 43 included an important massive mud-brick structure, more than 1 meter thick, that could possibly be part of a defensive wall structure or even a mud-brick platform. This mud-brick structure, which we came across in the lowest part of the trench was oriented NE to SW and, due to erosion, slopes to the SE. The depth of the trench at this point was more than 5 meters and the excavation was stopped at this depth.

The North Section-Cut

This cut was created during construction of “Delqand Road” that passes through the northern part of the mound. This unfortunate cut resulted in the destruction of an important part of the architectural remains and prehistoric layers in this segment, the remains of which can clearly be seen in the wall of the cut. Even though the cut exists through the whole length of the north part of the mound, only a small part of it (11 meters across and 2 meters high) was selected for recording and analysis. This segment was located parallel to Trench 1 on the other side of the before-mentioned brick wall and most of the architectural remains can be seen in it. A short distance to the east of the cleaned cut, traces of a grave was also found (Grave no. 2), part of which was destroyed during the road construction. Except for the feet and one third of the tibia, which were destroyed by the bulldozer during road construction, the skeleton was almost intact. Burial-goods consisted of two stone vessels, one copper pin and one stone bead (Pl. 4-7). Mud-brick architectural remains can be seen along the entire length of the

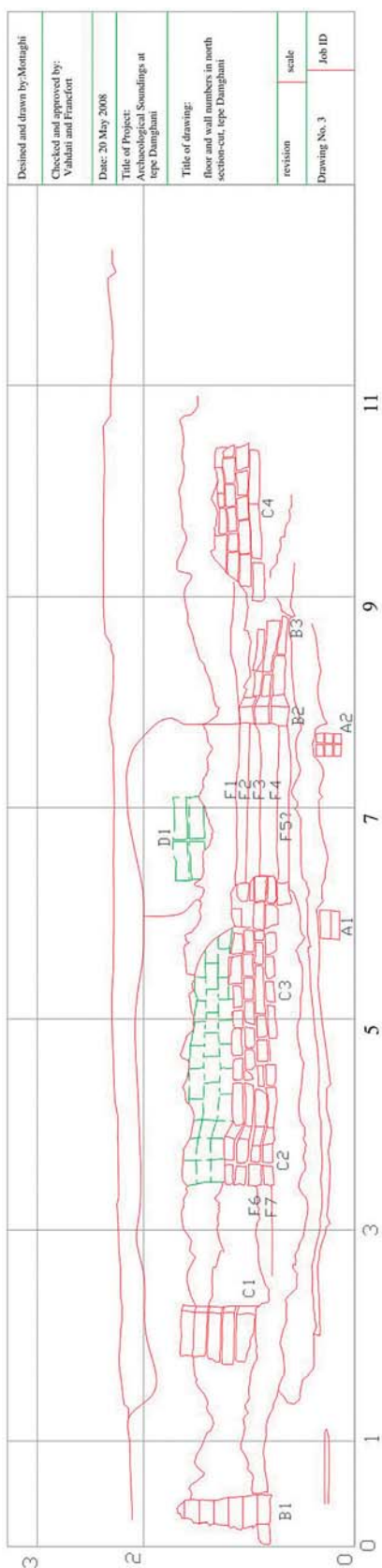
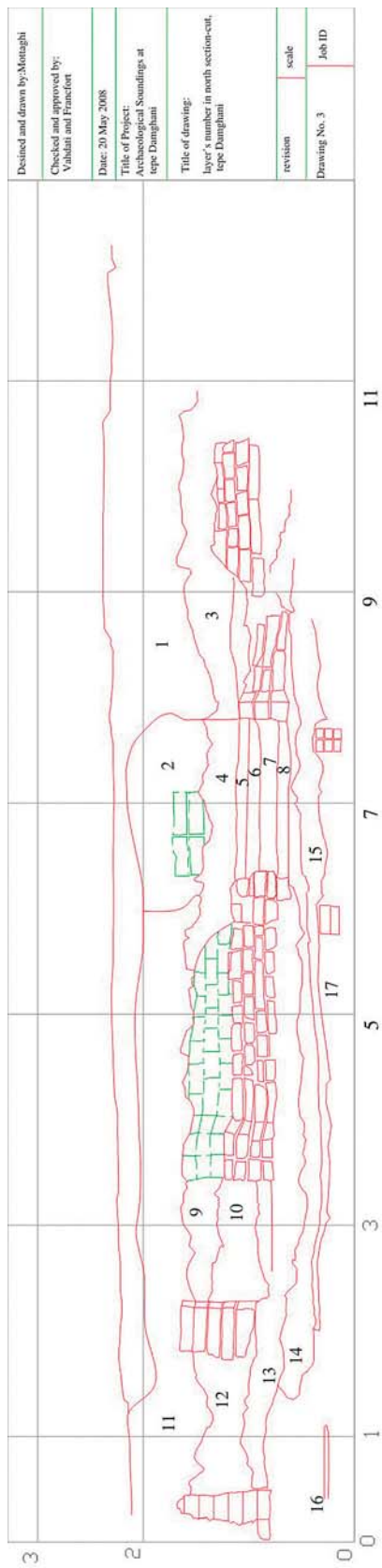
north section-cut. The walls are identical in terms of construction materials and size of mud-bricks, all oriented NE to SW and SE to NW and connected with occupational floors and layers and/or with abandonment and ash layers (Map 4). In this section-cut, from the bottom to the top, 4 phases of construction (A to D) and perhaps some intermediate sub-phases in between phase B and C were observed. They are presented as follows:

Construction Phase A: At a depth of 1.5 m from the surface, two walls exist that are made of perpendicular bricks (wall A₂) or double longitudinal (wall A₁) and are preserved to a height of at least 30 cm. These two walls may have been included in the same construction in a NW corner. A brown, homogenous sandy layer is associated with these walls.

Construction Phase B: This phase is separated from the previous phase by two thick layers: an ash layer and an alluvial, 'flood' type layer. This phase is represented by three mud brick walls separated by a distance of approximately 7 m, but in terms of stratigraphy are connected with each other. From the easternmost wall seven longitudinal brick rows are preserved (B₁). To the east of the section-cut, walls B₂ and B₃ lie in the usual orientation, and were constructed in longitudinal rows and form the corner of an architectural space. From these walls 4 rows of bricks preserved (Map 4).

Construction Phase C: The walls of this phase seem to have been in use with walls of the previous phase at least for a short span of time. This phase is the most important construction phase that can be discerned in the northern section-cut and consists of 4 thick walls made of double longitudinal or perpendicular mud-bricks of which 7 rows are preserved in some parts. Two outer walls in the eastern side (C₁) and western side (C₂) are part of the same walls, the length of which we found inside Trench 1 and named them stratigraphic unit 12 and 14. Two interior walls (C₂ and C₃) also formed a corner because they lie parallel to the former walls. Therefore, the collection of these walls shapes a corridor about 1.5 m width (Map 4).

Construction Phase D: This phase was separated from the previous phase by an obvious abandonment layer of alluvial gravels. Wall D₁ in this phase was found largely eroded and destroyed (Map 4).



Map 4. Number of layers (top), walls and floors (bottom) recognized in the N section. Letter 'F' in the lower drawing signifies 'Floor'.

Provisional Period Categorization

As mentioned above, excavation at Trench 1 of Tepe Damghani did not reach virgin soil. Hence, the stratigraphy and final periodization of Tepe Damghani will not be completed until a time when the whole sequence of this ancient site will be available following further excavation and survey. Nevertheless, a provisional reconstruction of the sequence of structural and non-structural layers is feasible with the help of data acquired from excavation in Trench 1 and examination of the north section-cut. Overall, from the results of this excavation, four architectural phases and six occupational layers have been discerned. From the bottom to the top, they were named period 1 to period 4. Based on the typological analysis of the cultural materials, especially the pottery, and also the results of radiocarbon analysis of several pieces of charcoal from various layers of this trench (stratigraphic units 26, 29, 31, 35, 39), the identified layers at Tepe Damghani belong to the Early Bronze Age (ca. 3000-2500 BC) and possibly also to the beginning of the Middle Bronze Age (ca. 2200-2000 BC). However, we assume that the materials gathered from the deepest part of the trench could date to the transition from the Chalcolithic to the Bronze Age. Further field research in future campaigns will shed light on this issue. Moreover, it must be added that some Late Bronze and Iron Age materials were also found from the disturbed surface layers, none of which were in the original context. Here below, in addition to separate description of the four architectural phases and the six occupation phases from the trench, the phases and layers coincident with those found in the northern section-cut were also ascertained.

Period I

Occupational Level I

Trench 1: This layer was formed by a massive mud-brick wall (SU 43), which was uncovered in the lowest part of the trench at a depth of approximately 5 m. Based on the slope of the layer to the SE, we may suppose that the excavated area is located outside the massive considered building. This wall eroded after its abandonment and as a result, a layer of sand (SU 40) had been deposited on top of it (this layer was constituted by stratigraphic units 41 to 43, which had an overall thickness of 20-25 cm). Considering the fact that we stopped excavation at this depth, no materials

were collected from this layer. Based on the type and designs of the ceramics obtained at this depth, it seems that this layer dates to the beginning of the Early Bronze Age and/or the transition Chalcolithic to the Bronze Age.

Northern Section-cut: This period was not observed in the northern section-cut.

Period II

This period was composed of three occupational layers (Layers 2-4) that altogether had deposits of a thickness of approximately 340 cm.

Occupational Level 2

Trench 1: no architectural features were observed in this layer but it is related to settlement. The layer is made out of several sandy layers with great quantities of pottery and faunal remains; generally of large size and found lying flat (SU 40). In these layers (SU 39) we have found reed impressions on pieces of dried mud that perhaps had fallen from domestic ceilings (occupational level 2 consists of Stratigraphical Units 37-41 that altogether is 150-180 cm thick).

Northern Section-cut: Due to the similar elevation and sediments, it is possible that these identified buildings with walls are contemporary with construction phase A (A_1 & A_2).

Calibrated Radiocarbon dates for this occupational level based on analysis on charcoal samples from Stratigraphical Unit 39 is between 2910-2850 BC. (Table 1)

Occupational Level 3

Trench 1: this layer shows agricultural activity. Characterized by layers of lightly cultivated soils (SU 33, 34, 36, 37) containing gravels, brick fragments, micro-layers of sand and silt possibly produced by artificial irrigation. These layers were beneath a more or less visible floor (SU 35) associated with a hearth (formed from stratigraphic units 33, 34, 36 and 37, which together have a thickness of 1 m).

Northern section-cut: In the profile, after the first building phase, abandonment layer was observed that was similar to the layer in the trench and is possibly the result of agricultural activity.

Occupational Level 4

Trench 1: This layer is connected with buildings that are not observed in the trench, but based on the slope of the layers to the SE, are possibly located in the NW. Following this, there is a solid occupational floor that is covered by several layers of soft ash mixed with small fragments of mud-brick. On this floor there were tiny cracks and crevices, whose continuations can be traced to the mud-brick wall in the layer above. These cracks could be indicators of a relatively severe earthquake in the region during or after this occupation.¹ This layer was composed of stratigraphic units 27, 29, 30, 31 and 32, which together were 65 cm thick.

Northern Section-cut: Structures possibly related with this phase are those that were identified as construction phase B, and were composed of three walls (B₁-B₃) that were constructed on top of a layer of ash.

Based on the results of samples taken for radiocarbon dating from stratigraphic units 29, 31, 35 and 39, this period (period II) dates to 2910-2500BC, which places it in one chronological horizon with Namazga IV (Early Bronze Age).

Period III

This layer is composed of two occupation layers (layers 5 and 6), whose deposits altogether was 80 cm thick.

Occupation Level 5

Trench 1: This level is characterized by the presence of two walls, the first oriented WN-SE (SU 12), the second perpendicular to the first (SU 14) and only part of it was excavated. The observed evidence in this level is a floor level apparently for leveling the place before erection of the wall (SU 26), one occupational floor before that and a sequence of layers

¹ The city of Sabzevar has been relatively free from earthquakes in the modern age, although slight damage was caused by two small earthquakes (with magnitudes of 4.6 and 4.2), on the 12th and 17th December 2004 (from, Institute of Geophysics, Tehran University). However, Sabzevar remains at risk from earthquakes in the future, and historical sources describe how the city was destroyed by a large earthquake in AD 1052 (named the Baihaq earthquake; Ambraseys & Melville 1982). As the Sabzevar thrust is the major identifiable active fault in the region, and passes very close to the city, it seems likely that this fault was responsible for the AD 1052 event.

(SU 11-25) made up of several floors (SU 11, 19, 23) and layers of refuse (SU 17, 18, 20, 21, 22, 24 and 25) that in some parts contained large amount of ash. Use of the excavated area as a dumping spot for refuse and gentle sloping of the excavated layers to the SE shows that this area was located outside the aforementioned building space.

Northern Section-cut: These two walls can clearly be observed in the northern section cut (C2, C3), particularly the one that is traceable in a considerable length, associated with two other walls (C1, C4) (Map 4). This shows the existence of a major construction phase that continues to the north and indicates that Trench 1 has encountered layers outside of the architectural space. Here we are dealing not with deposits from inside the residential space, but a location of occupational trash dumping. This assumption is also corroborated by the results of archaeobotanical and archaeozoological studies, which will be discussed later in the present article.

Occupation Level 6 (Final)

Trench 1: examination of this level in the trench shows that the area was abandoned and then reoccupied again after some time. The grave of a neonate (SU 10) has been dug on top of the wall of the abandoned space. A floor level (SU 7) and a fireplace discharge (SU 6) that was composed of fired mud-brick fragments and ashes (SU 3-4) is evidence of a continuation of residence in this place (SU 11-27, that altogether had a thickness of 80 cm). Grave 2, which was found in the north section-cut, could possibly be connected to this phase, based on the level of the mouth of the grave pit and also the grave of the neonate on top of the ruins of a wall (SU 12).

According to Calibrated Radiocarbon dates from stratigraphical Unit 26 the C14 age of period III is between 2520-2500 BC (Table 1).

Period IV

Trench 1: apparently, the whole occupation area is sealed by a flood depositing great quantities of gravel mixed with pottery (SU 2, 5) on the surface of the site. In the uppermost level of the trench, only disturbed layers are present (stratigraphic units 00- 1, altogether 70 cm thick).

Northern Section-cut: The flood layer of sand and gravel is easily visible in the northern section and is located right underneath the mud-bricks of wall D₁ that is in a bad state of preservation.

Pottery

In this preliminary stage of research, the aim of pottery study is to characterize the chronological and cultural sequence of Trench 1 in particular and Tepe Damghani in general. The ceramics obtained from the excavation of Trench 1 have not been the subject of statistical analysis, but we have expanded the domain of investigation with the collection of pottery by unsystematic random sample from the surface of Tepe Damghani, Mirabad 1 and 2, and more observations (but no soundings) at Tepe Ferizi.

The pottery of Trench 1 often is plain and related to every-day domestic use; however, amongst them, a number of painted shards are also present that perhaps one can consider as belonging to luxury or prestige wares. Pottery of the first and second layer had burnished surface and a red-orange slip. The paste of this pottery is pinkish cream and temper agent is mineral in the form of red and grey pebble. Many of these shards have black patches of firing on the exterior, which could possibly be a type of decorative element. Coarse ceramics with sooty surface or the 'cooking ware' with mineral temper agent, especially large white grit are amongst the ceramics of these periods. These vessels often had spherical bodies and wide mouths (fig. 1, no. 3, SU-29; fig. 2, no. 2,5; SU-36). One of the notable types in the first two layers is a brownish buff pottery with perforated body, similar to a strainer but the diameter of the body holes was approximately 1 cm (fig. 3, no. 4, SU-40). Examples of these vessels, which sometimes are referred to as "Braziers", are found in northeastern Iran at Tepe Hissar-Damghan (Period III) (Schmidt 1937: 184, Pl. xxxvi, h5215; xliii, h3300, h3304), at Tureng Tepe (K. Olson pers. comm. 2011), Shah Tepe (Period II and III), Tepe Challow (trench 3, SU2) (Vahdati & Biscione, 2011:59, unpublished report) and at Tepe Qal'eh-Khan (Trench 3, layer 19) (Garazhian 2008, unpublished report). These items have also been reported from some other sites of South Asia such as Merhgarh (Santoni 1981: 54, Fig 8.3:12) as well as in south Central Asia (e.g the cemetery at Gonur Tepe) (Sarianidi 1998: 39) and Afghanistan (e.g Mundigak, Shortughai) (Francfort *et al.*, 1989: pl. 38, n° 11-19). Some of the researchers believe that this type of vessel in the third millennium BC was used for processing dairy products in the Indus river valley (Gouin 1992).

A type of burnished grey pottery or grey ware with incised patterns was also observed in this period (fig. 4, no. 7, SU 36). Clay of this type of pottery is washed, well levigated, very compact, and tempered with fine sand.

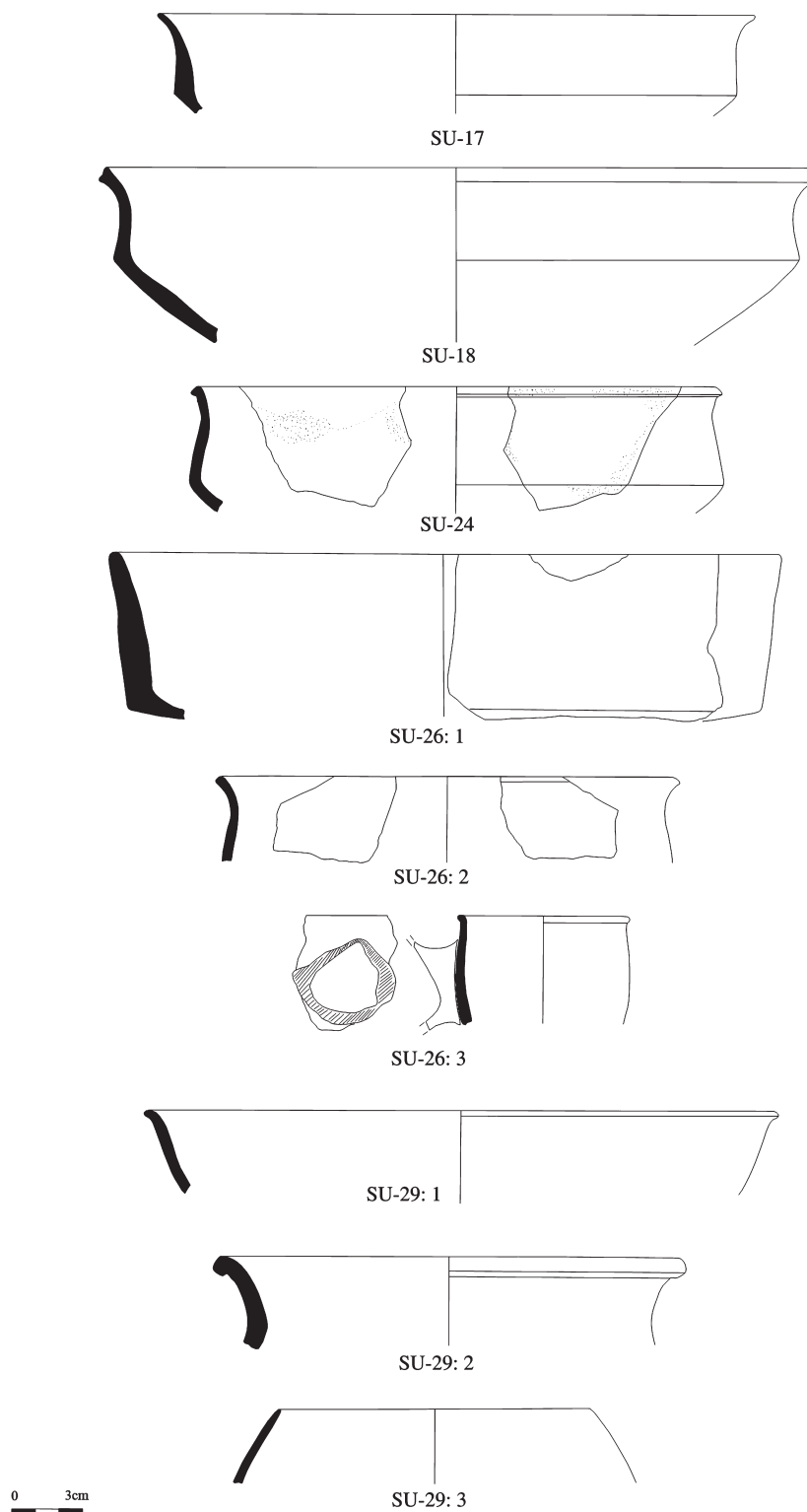


Fig. 1. Pottery of period III (SU 26) and II (SU 29), Tepe Damghani.

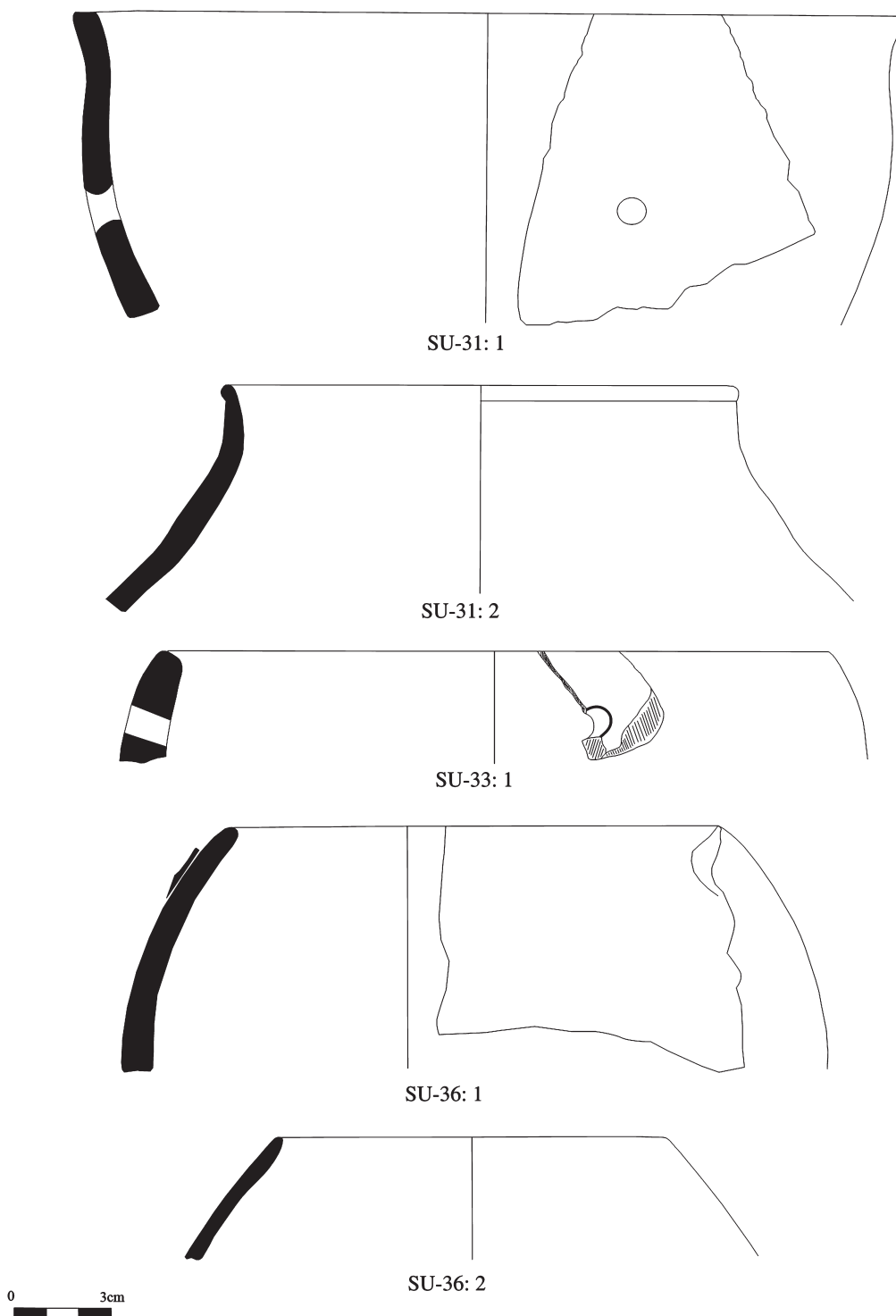


Fig. 2. Pottery of period II (SU 31, 33, 36), Tepe Damghani.

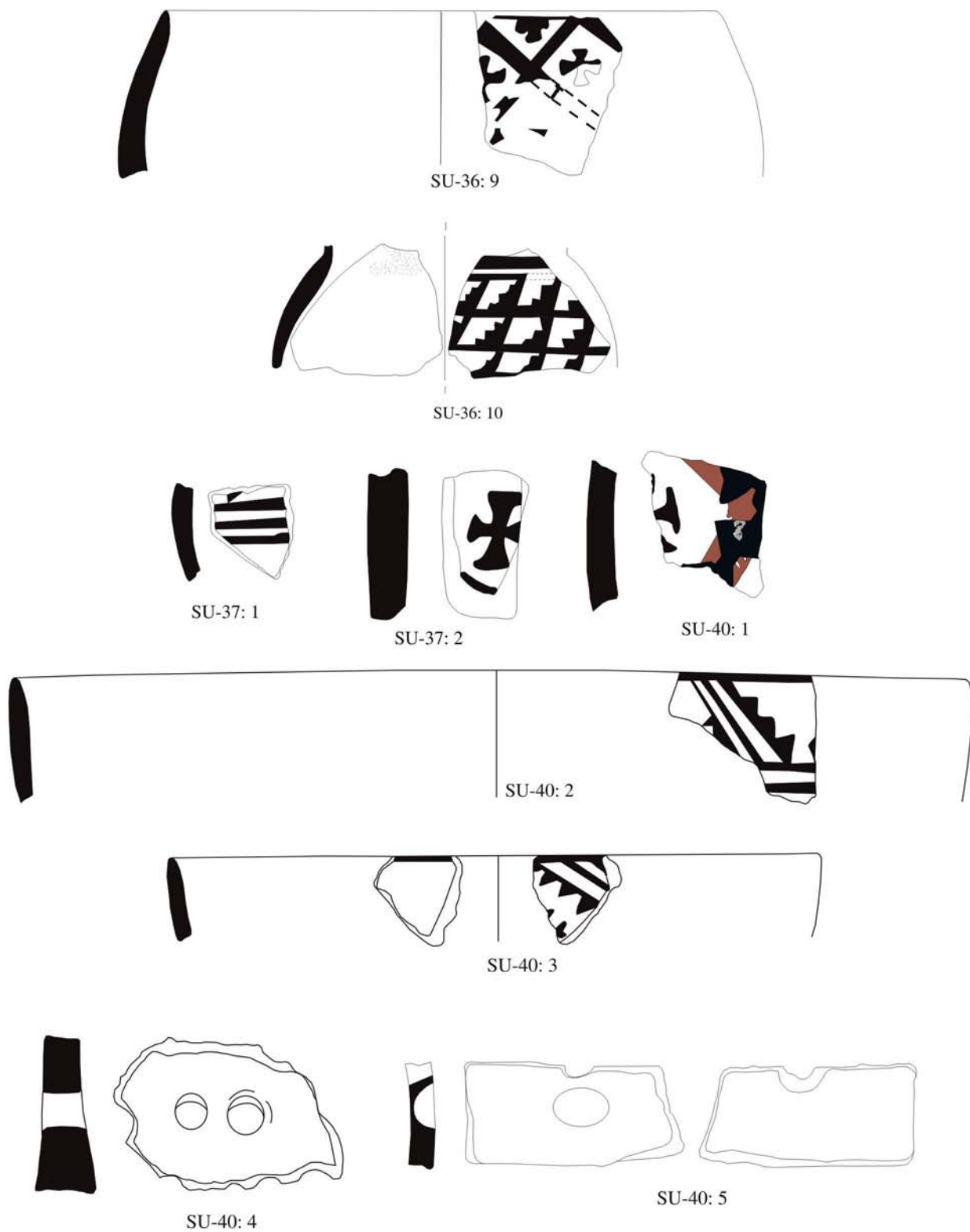


Fig. 3. Pottery of period II (SU 36, 37) and I (SU 40), Tepe Damghani.

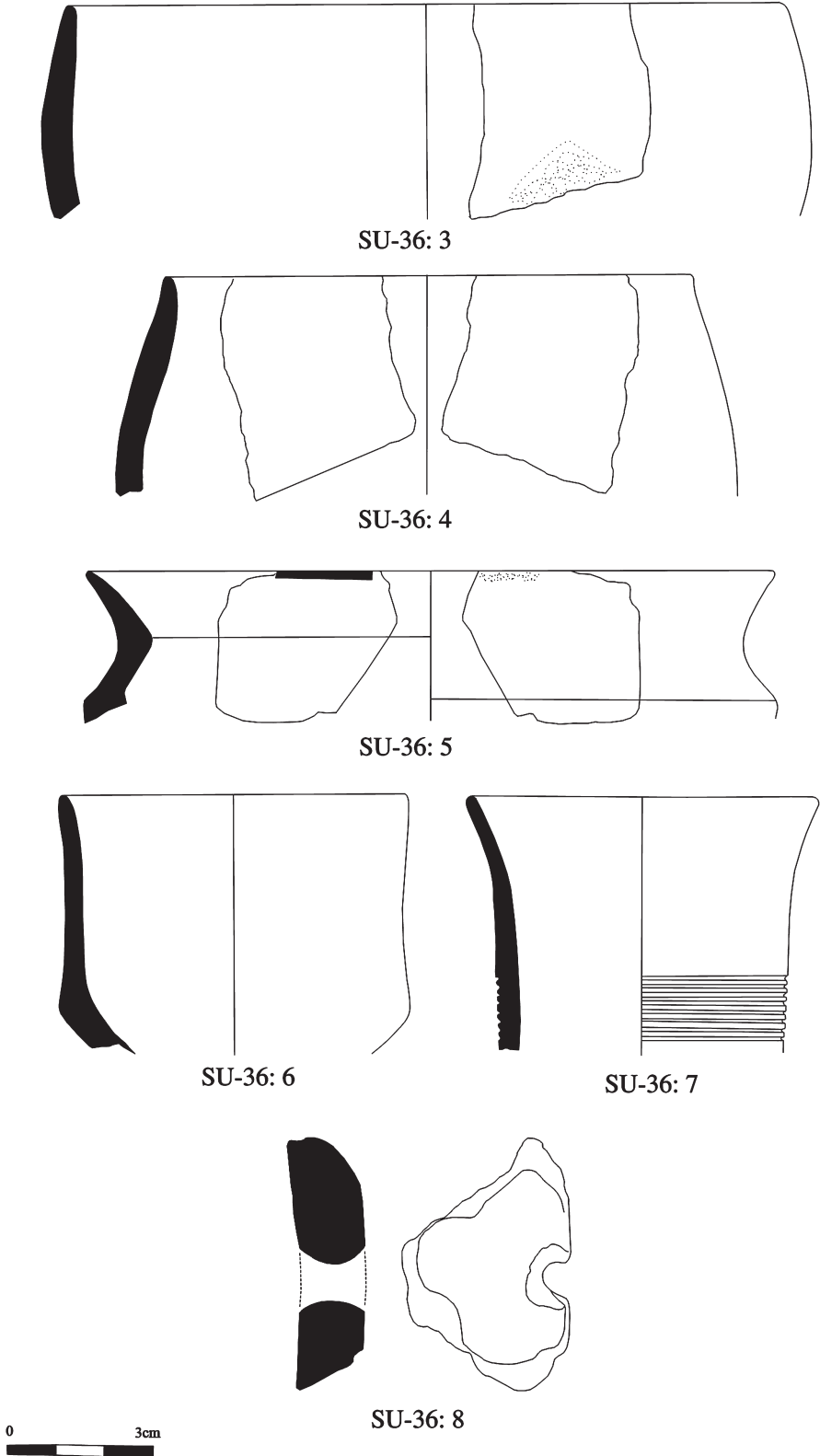


Fig. 4. Pottery of period II (SU 36), Tepe Damghani.

The form and the production technique of this type of pottery resemble the Qara-depe pottery in the northern foothills of the Kopet Dag and to some extent is also similar to the Gurgan Grey Wares (for example see Kohl 1984: 100, Pl. 7a; Kohl et al. 1982; Kircho 1999; Masson 1960: 354; Khlopin 1959).

In general, the amount of painted pottery from Trench 1 is small. The painted pottery of Period II has a buff paste, mostly covered with cream slip and painted by black or dark brown designs. The designs sometimes are limited to one simple band on the brim of the lip, and sometimes are composed of geometric designs including stepped motive, patterns of diagonal bands, rhomboid patterns and Maltese crosses (fig. 3, SU 36-37). Amongst the ceramics of the beginning of Period II (Level 4, SU 39), a painted buff sherd with black lozenges on red band on cream slip was found (fig. 3, no. 1, SU 40). This decoration is similar to the ceramics of the Namazga III period and samples from the southern Hindu-Kush but since the form of shard is uncertain no conclusive comments can yet be made about it. In the upper layers of this period, namely, the third occupation level (SU 36), a painted buff shard was found decorated with a black band on the rim and

Maltese Crosses inside lozenges (fig. 3, no. 9, SU 36) that is similar to examples from Namazga IV in Central Asia. Moreover, this unit produced a fragment of body-rim junction of a small beaker painted with black band and half stepped motives in a grid of rectangles (fig. 3, no. 10, SU 36), which in every aspect is similar to the characteristic decorations of the Namazga IV period in the northern foothills of the Kopet Dag. The stepped patterns are prevalent from Period III of Mundigak in southeastern Afghanistan, but are also present in many of the ceramics of Periods XLI (Casal 1961: no. 269, fig. 77), XLII (Ibid, no. 392, fig. 91), and XLIII (Ibid, no. 444, fig. 96, no. 478, fig. 102) of Mundigak (fig. 1, 2 and 4).

The forms of ceramics from Period II and Period III often include cups with straight bodies and sharp rims, vessels with narrow mouths, flat lips and spherical bodies as well as sherds from thick, large jars with tall necks.

Deep, open mouthed bowls with carinated bodies often in buff or red and covered with red-ocher or plum colored slip (fig. 1, SU 17, 18, 24) are predominant in period III of Tepe Damghani. This type of pottery is always plain but, in one instance, a black band was painted on the edge of the lip. The temper of these ceramics was sand and grit.

Fine grey wares with burnished surface, sometimes with incised patterns were also observed in Period III. Among them, one can point to the pieces of a multiple vessel (fig. 1, no. 3, SU 26), examples of which are to be found in the Gurgan plain. Various types of 'cooking wares' with large white, black and/or red mineral temper are plentiful in this level and their forms are approximately the same in all of the layers.

Among the pottery of the latest period (IV), material of which is almost totally disturbed, one can see various types of red-orange ceramics with black patches of firing and similar to previous periods, including bowls with carinated body (fig. 5, no. 11-15, SU 01), and rounded rims that are paralleled in Namazga IV period but, carination of some instances are closer to Namazga V and BMAC-Oxus bowls. Blackened cooking wares including globular pots with flat rims and wide mouths, which were observed among pottery of the previous period, also occur in this period. Among ceramics of the disturbed surface layer, we observed some types of pottery similar to pottery of period IV and various types of ceramics connected with BMAC-Oxus, such as pedestal based cups (fig. 6, no. 5), 'S' carinated bowls (fig. 6, nos. 1-3) as well as buff sherds of moulded jars belonging to Namazga VI horizon. Examples similar to these vessels have also been found in the upper disturbed layer (Period IV) (fig. 5, nos. 19-20, SU 01). Due to the fact that the lower part of these jars has been mould-made and then connected to the upper part, sometimes the surface of the lower part of these vessels was covered with soft sand.² Different types of ceramics similar to Namazga VI and Yaz II-III related ceramics (the Late Bronze to Late Iron Age) were also found in the disturbed surface layers; not one example of which was found *in-situ*.

As it is evident from above descriptions, in the sequence of Tepe Damghani, which is almost completely contemporaneous with Namazga IV, carinated forms are predominant in the bowl and cup assemblages of the upper layers (down to SU 27-30) and are exceedingly rare in the lower layers, where straight walls or curved bodies are more important (from SU 33 down to 40). This change from straight to carinated bodies may be linked to the technical modification of wheel turning and in some way anticipates the Namazga V or the Oxus conical cups.

² The sand was either placed inside the mould to allow the vessel to be removed more easily or perhaps the mould was made of sand in the ground.

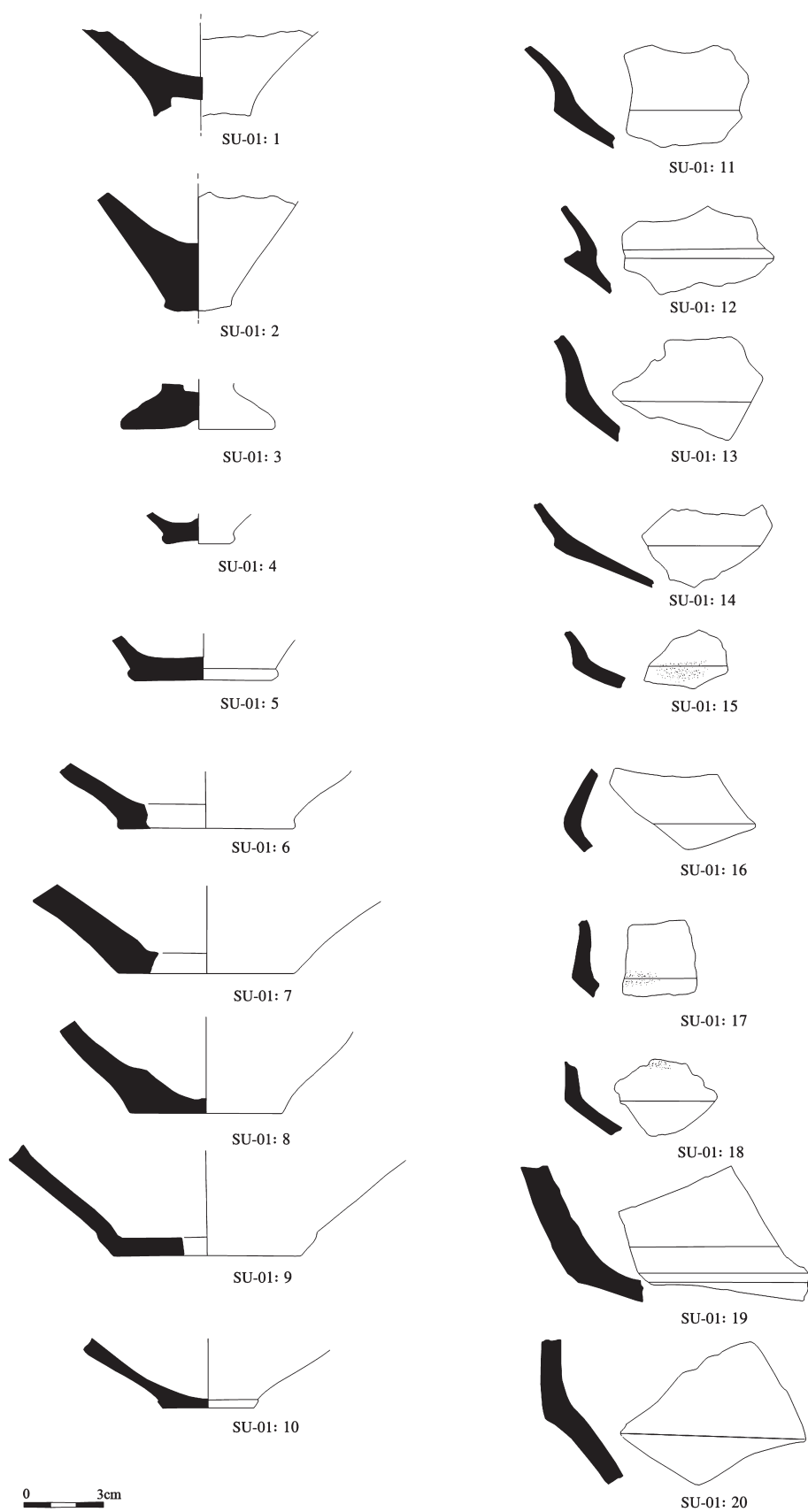


Fig. 5. Pottery of period IV, Tepe Damghani (Stratigraphical Unit 1).

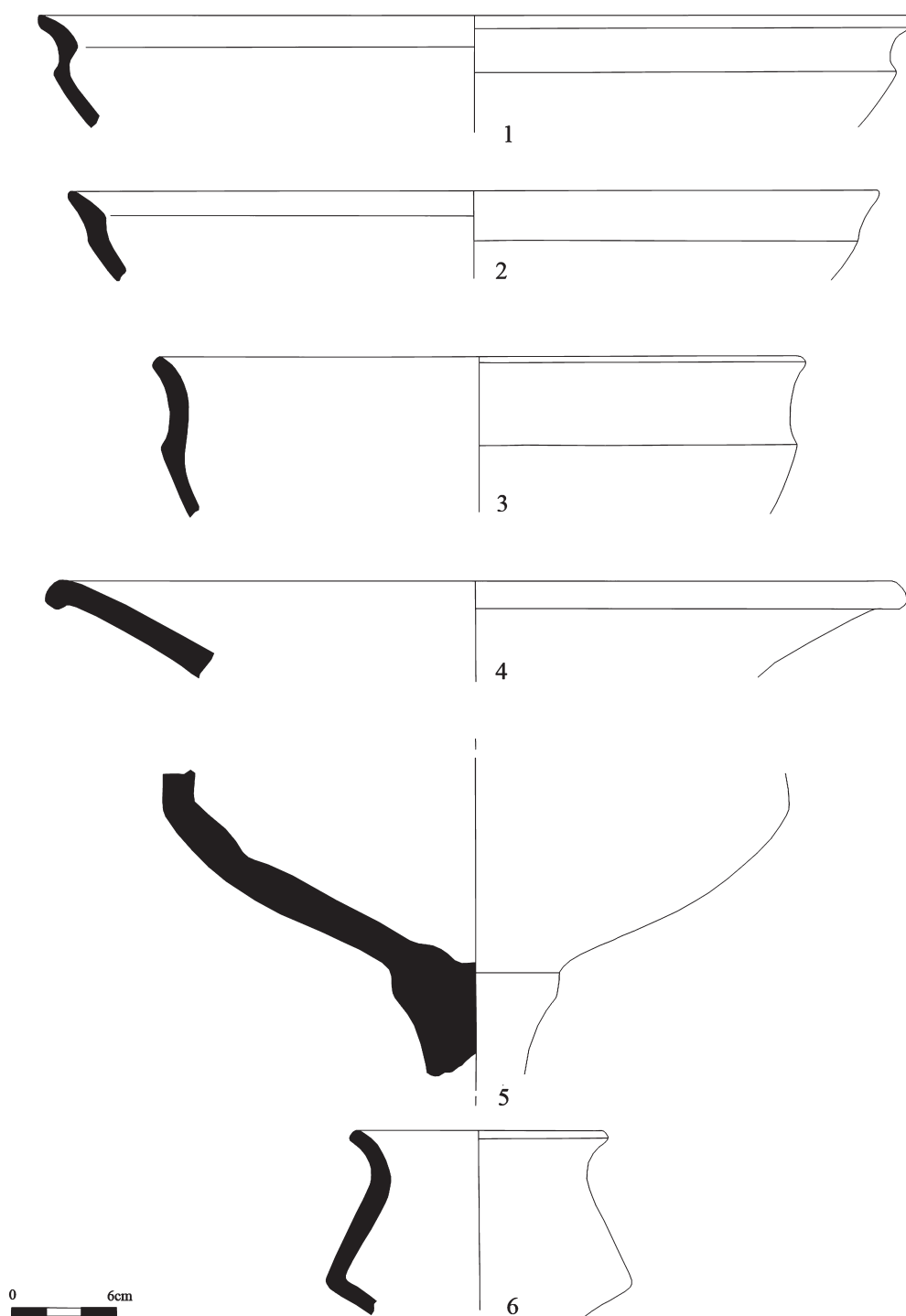


Fig. 6. Potsherds from the surface of Tepe Damghani.

One important aspect of the pottery assemblage of Tepe Damghani is that it entirely belongs to quotidian domestic ware rather than prestige wares. The painted pottery is rare in the assemblage and the variety of forms is limited. It also must be pointed out that the cooking ware is ubiquitous in the assemblage and in terms of form and production technique, not much difference is observed between them. One has to take in account the fact that these domestic wares, due to their simplicity, have usually been ignored by authors, who in the most cases incline to publish only complete painted pots or the prestige wares. Therefore, comparative analysis of this type of ware is difficult indeed.

Secondly, the Sabzevar region in particular and Khorassan in general could have developed original forms of assemblages, not to be included into the previously and better known constituted assemblages of Central Asia without reflection. More research will be needed to solve this important question.

Small Finds

A number of small objects were found during the excavation of Trench 1, Grave 2 in the Northern section-cut and in the surface survey at Tepe Damghani, mostly dated to the Bronze Age. Among them, one can point to a large number of fragments of stone vessels made of alabaster that were found on the surface of the mound and in the disturbed layers near the surface. These vessels often had a cylindrical or carinated body (fig. 7), but one example that was found in Grave 2, had a cubic body and a cylindrical neck (Pl. 6 and 7). Similar examples to the stone vessels of Tepe Damghani are to be seen in the Early and Middle Bronze Age of northeastern Iran and southern Central Asia (see for example Masson 1988: Pl. XXXV, no.8).

A number of stone arrowheads and a red stone stamp seal were also obtained on the surface of the mound (Pl. 8). The stamp seal, which was broken down the middle and only half of it was found, is rectangular and has geometric designs drilled into its surface (Pl. 8, no. 3). In terms of manufacturing technique, design and composition, the stamp seal of Tepe Damghani is similar to a number of chlorite seals from Shahr-e Sokhta (Sajjadi 2006: 151, fig 30; Lamberg-Karlovsky & Tosi 1989, fig 38) and Altyn-Depe (Masson 1988: Pl. XVII, no. 7). Among the stone artifacts one can point to a number of stone pestles, which were used for grinding.

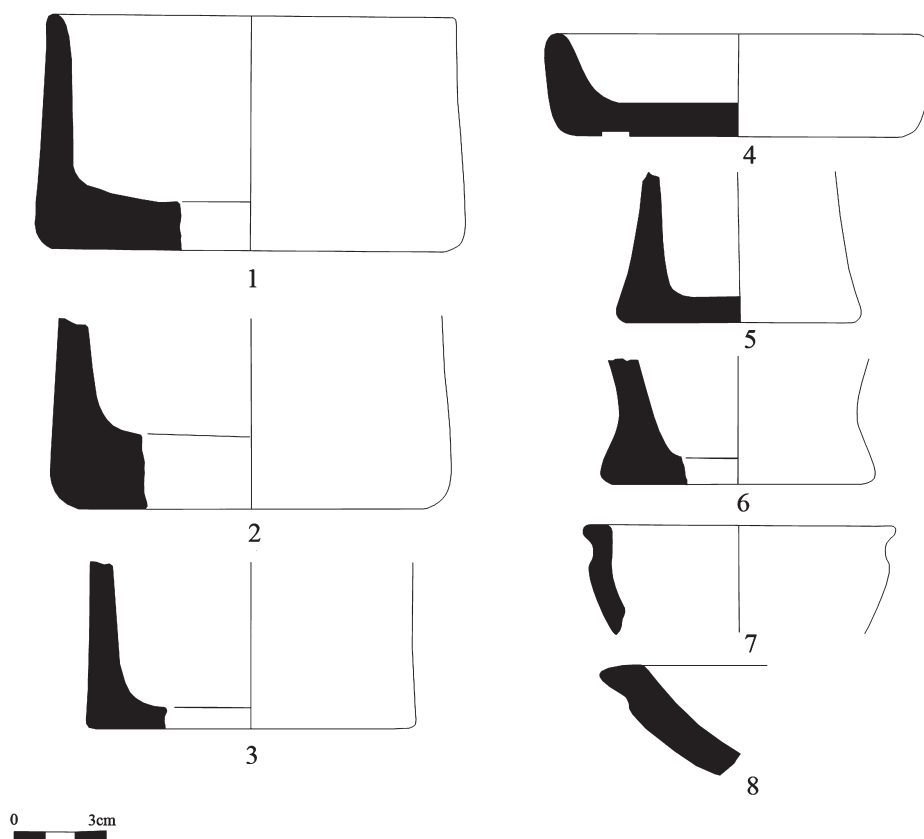


Fig. 7. Fragments of alabaster vessels from the surface of Tepe Damghani.

These pestles were made from a type of smooth greenstone, which is found abundantly in the mountains north of Sabzevar.

Among the clay objects, one can point to a small figurine of an animal, possibly a zebu (Pl. 8, no. 6). A terracotta 'drill head' was also found, that was broken and only half of it was recovered (Pl. 8, no. 5). Similar examples of this object have been reported found in several ancient sites of Iran, including all three periods of Tepe Hissār (Schmidt 1937: Pl. XIV A, 117, 417(H2789), Tepe Esmā'ilābād (Navai 1976: unpublished *Mémoire de l'Ecole du Louvre*, fig 38) and Central Asia, including at Dāshliji Depe (Khlopin 1963: fig. XXII) as well as in period IB at Anau and were used at least from the Chalcolithic until the late Bronze Age.

In general, except for a bronze pin, probably a kohl stick that came from Grave 2 (Pl. 6 and 7), no metal objects were found at Tepe Damghani. This bronze pin, which was found near a stone vessel with cubical body and cylindrical neck, was part of the grave-goods of Grave 2 in the Northern section-cut of which part had been destroyed during road construction. The shank of this pin is made of a twisted bronze bar and the head is pyramidal flat, decorated with stepped lozenge. This stepped pattern is seen on a number of the painted ceramics of Tepe Damghani (fig. 3; Pl. 9) and is prevalent on the painted vessels of Namazga IV, Shahr-e Sokhta III, Mundigāk III-IV and many of the other sites of northern Khorassan and southern Central Asia. Very similar examples to this bronze pin are found in Shahr-e Sokhta III (2500 to 2200 BC) (see for example Sajjadi 1374[1995]: 359, fig. 32; Sajjadi 2006: 152, fig. 152, g.3200/12) and some also reported from Namazga V materials of Altyn-depe (Masson 1988: Pl. XXXVIII, nos. 4-5).

Results of the archaeobotanical analysis

The excavation at Tepe Damghani in 2008 included sampling for archaeobotanical remains in order to gain knowledge on the exploitation and use of plant resources at the site during the Bronze Age. Tepe Hissar in the Damghan plain, around 300 km west of Sabzevar, is so far the only site in the Khorassan province that has been studied from an archaeobotanical point of view (Costantini and Dyson 1990) and Tepe Damghani thus provided an excellent opportunity to complete our record from north-eastern Iran. Moreover, the archaeological deposits excavated in Trench 1 were to a large extent favourable for conducting this type of analysis as ashy layers, probably corresponding to domestic refuse, were frequent. Such contexts are liable to contain the carbonised remains of wood used for fuel, for example in domestic hearths and ovens, foodstuffs that came into contact with fire by accident during cooking as well as intentionally burnt refuse.

Samples were systematically collected from the various layers excavated in Trench 1 resulting in 20 sediment samples corresponding to a total volume of 1582.5 litres of soil. The size of individual samples varied between 13 and 279 litres with a mean volume of 79 litres per sample. Nine samples came from levels 2, 3 and 4 dated to Period II; eleven samples

belonged to levels 5 and 6 dated to Period III (Table 3). Finally one sample, consisting of mineralised fruit remains, was manually collected from the lowermost level 1 (Period I).

The sediment samples were treated by flotation in order to extract carbonised macroremains (wood, seeds and fruits). A flotation device, made out of three empty petrol drums by a blacksmith in Sabzevar, was put up on the site near Trench 1. Water drawn from a large basin used for irrigation was recycled with the help of an electric pump. The heavy fraction was recovered on a large sieve with a mesh size of 2 mm placed inside the first flotation tank. Carbonised plant remains were recovered in a smaller sieve with a 0.5 mm mesh. All of the samples except three (from US 7, 8 and 19) contained carbonised plant remains in variable quantities. Densities of seed/fruit remains vary from 0.1 remain/litre of sediment to 16 remains/litre (Table 3).

The analysis of the wood anatomical structure of 397 charcoal fragments carried out with the help of a reflected-light microscope has allowed the identification ten different woody taxa (Table 2, Pl.10). The most frequently encountered wood type in the samples from Damghani is tamarisk (*Tamarix*), a hardy tree or shrub that commonly grows on periodically inundated soils but can withstand both drought and saline conditions. Charcoals corresponding to shrubs from the goosefoot family (*Chenopodiaceae*), another group rich in halophilous species, are also met with in many samples. Other taxa that are represented by a fair number of fragments are the Russian olive or sea-buckthorn (*Eleagnus/Hippophae*), hackberry (*Celtis*) and pistachio (*Pistacia*). The remaining taxa are less frequent, for example ash (*Fraxinus*) and oak (*Quercus*) occurring only sporadically in samples from Period II.

In table 2 the identified taxa are tentatively grouped together in plant formations according to their ecological characters, resulting in the distinction of two main vegetation types that were exploited for wood at Damghani. Hygrophilous taxa, characteristic of humid conditions, dominate the charcoal record in Period II (58%) and are frequent also in Period III (46,1%). Riverine formations, or so-called gallery forests, thus seem to have constituted an important source for fuel wood during the Bronze Age and probably grew near the site. This result corroborates the hypothesis of the presence of a permanent watercourse reaching Damghani in the past (see above).

An equally important group of plants, represented by 42% of the charcoal fragments in Period II and 53,9% in Period III, would have grown in drier, more steppic conditions and form open shrub- and woodlands. Of particular interest are three arboreal taxa – hackberry, pistachio and oak – that do not grow in the plain anymore but are common elements of woodlands, for example in the Zagros mountain chains (Frey & Probst 1986). The mineralised fruit stones (endocarps) of hackberry are identified from several contexts, especially in the levels of Periods I and II (Table 3). The fruits, globular drupes, are edible and may have been collected for food at Damghani or brought in to the site together with wood. No fruit remains of pistachio have so far been attested at the site even though these trees may also have provided edible fruits. Nutshell from pistachio (both true pistachio, *P. vera*, and wild forms) have nevertheless been identified on other Bronze Age sites in eastern Iran, such as Shahr-e Sokhta in Sistan-Baluchistan (Costantini et al. 2003), TepeYahya in Kerman (Costantini & Costantini-Biasini 1985) or in southern Central Asia at Djarkutan in Uzbekistan (Miller 1999).

Among the more than 2500 identified seed/fruit remains from Tepe Damghani fruits collected from the wild are not dominant though as the majority of these plant remains belong to cultivated species (Table 3, pl. 11).

Cereals are present in more than 80% of the samples and represent a quarter of the identified remains. They appear in the lowermost samples (except in the hand-picked sample from SU 40) and are present throughout the sequence. Barley (*Hordeum vulgare*) is represented by both hulled and free-threshing (var. *nudum*) types. The wheat is predominantly of the free-threshing (“naked”) bread wheat type (*Triticum aestivum*) even though a glume base of a more “primitive” hulled wheat taxa (*Triticum dicoccum*) is also noted in a Period II sample. Only one pulse species, lentil (*Lens culinaris*) is represented by a limited number of seeds found in two Period II contexts.

Large quantities of grape pips (*Vitis vinifera*) are present in contexts dated to Period III and are likely to represent the by-products of grape pressing.

The remaining seed/fruit remains refer to wild species belonging to several different botanical families, such as grasses (*Poaceae*) and wild pulses

(*Fabaceae*). They may in many cases correspond to weeds growing together with the crops in the field from which they were separated and then burnt during post-harvesting processing. The relatively numerous rachis remains of barley and wheat found in the US 35 and 36 (Period II) are likely to correspond to the cleaning of crops too. In general, the content of the archaeobotanical samples from Tepe Damghani is consistent with the interpretation of these contexts as refuse layers associated with domestic structures.

Despite the small exposure during the excavation in 2008, archaeobotanical remains were rich at Tepe Damghani and show the potential for this type of analysis on similar sites in northeastern Iran. The first results of the charcoal study suggest an environment that was richer and more varied than today including riverine formations, probably growing near the site, as well as open woodlands on drier soils. Such vegetation types are not present around Tepe Damghani anymore due to the arid climatic conditions and especially the heavy impact of human activities in this area that is today situated at the margin of the modern city.

The image of an agricultural economy based on the cultivation of free-threshing wheat, barley and pulses is consistent with what has been found on other 3rd millennium BC sites in eastern Iran as and southern Central Asia (Miller 1999, 2003; Costantini & Costantini-Biasini 1985). The presence of grape remains is also a recurrent phenomenon from the Early Bronze Age on sites in the Middle East reflecting the importance of fruit growing practices and probably of wine production from this period on.

Animal exploitation at Tepe Damghani

The archaeozoological study of Tepe Damghani is among the rare existing faunal analysis for this part of Iran in general and more over for the Bronze Age and Iron Age in northeastern part of Iran. A total of 4700 bones were recovered from 42 Stratigraphical Units of Trench 1. The animal bones and teeth were hand-picked and few bones were also recovered during the botanical flotation and added to the main assemblage.

Animal bones like the botanical remains were recovered in a dump area and as a result they were relatively abundant for the restricted area that was excavated. The bones and teeth belong to butchery and consumption refuse

showing typical indicators breaks, firing and cut marks. Some bones have been gnawed or digested by carnivores and some bear rodent incisive marks. This probably means that the material was probably exposed in the dump area (Pl. 12: A, B, C). The faunal remains are differently preserved in the stratigraphic units; the rate of unidentified bones fluctuates from 45% to 15% in some units, and upper layers seem to be better preserved. It should also be noted that in the excavated section bones were covered with a thin layer of concretion in all levels. A change is observed after layer 39 towards the lower layers.

In order to analyze the evolution of subsistence economy during the occupation of the site, the faunal remains were pooled together into three units according to the chrono-cultural attribution of the stratigraphic units, Early Namazga IV, Late Namazga IV and finally Late Bronze Age (BA) and Yaz 2-3. The most abundant assemblage comes from the Early Namazga IV (NISP = 1041) and decreases in the two other assemblages, respectively to 647 and to 195 identified specimens. These figures are nevertheless statistically valid and represent the general trend in the animal exploitation during the cultural periods of the site.

The bulk of the faunal remains in all periods belong to small herbivores. Caprini (sheep and goat) are highly dominant (between 93 to 98%). According to morphological features most of these remains can be allocated to domesticates. However some of them with diagnostic features could be easily recognizable as wild specimens. In particular some fragments of the horn cores show the presence of the wild sheep (*Ovis orientalis/O. vignei*) and wild goat (*Capra aegagrus*).

Also noteworthy is the fact that in general the sheep outnumber goats by a ratio of 2/1.

Gazelle bones are present in all SU groups by 1 to 3%. The species present in this region is *Gazella subgutturosa* (Pl. 12: D, E). However the presence of other proximate taxa, namely *Saiga tatarica* is not excluded.

The Equids are scarcely present; they have been only identified in SU 38-26. The metric analysis for a distal radius in level 38 indicates that the animal is either a hemione (*Equus hemionus onager*) or a donkey (*Equus asinus*) (fig. 8).

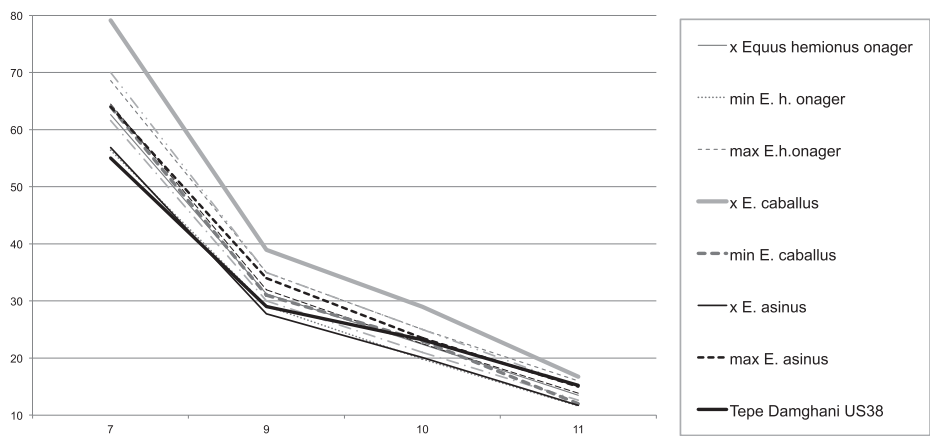


Fig. 8. Comparison of the distal Radius measurements of Tepe Damghani with the modern reference collections of hemione, (*Equus hemionus*) horse (*E. caballus*) and donkey (*E. asinus*). Measurement after Eisenmann 1986.

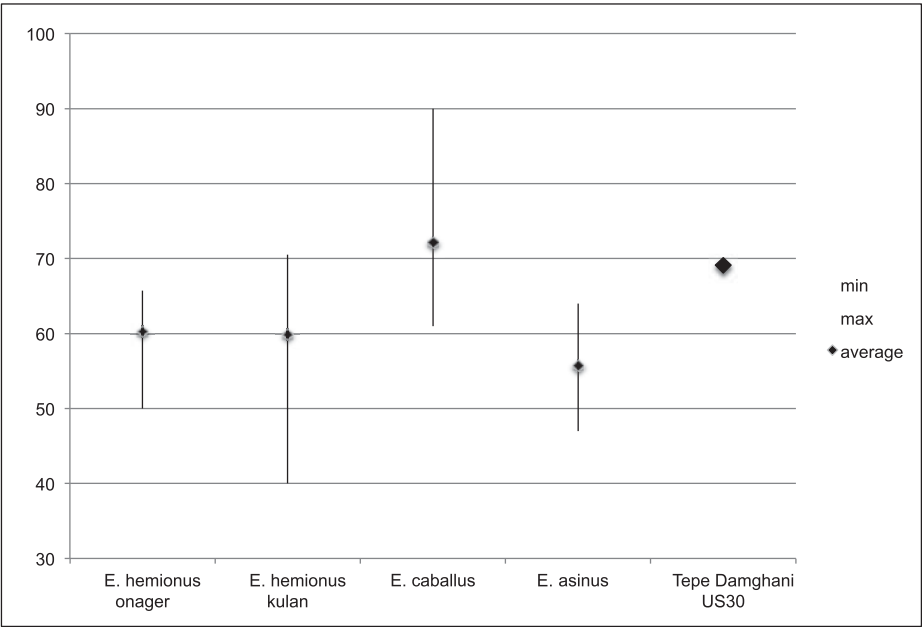


Fig. 9. Comparison of the distal Tibia measurement of Tepe Damghani with the modern reference collections of hemione, (*Equus hemionus*) horse (*E. caballus*) and donkey (*E. asinus*). Measurement after Eisenmann 1986.

It is not possible at this point to go further in the analysis. Another bone, a distal tibia was found in upper layers and is more compatible with the horse measurements (fig. 9).

Cattle remains are very badly represented in the assemblage (between 1 to 3%). They seem to be more abundant in basal layers. The size of the bones is very small. The presence of the Zebu is not excluded.

Turtle bones are present only in SU 38-26. According to the morphological features of the shells it belongs to the *Testudo graeca*.

No fish or small bird bone has been identified among the remains, even though flotation has been systematically performed.

The animal subsistence economy in Tepe Damghani is highly dependent on pastoralism. The main domesticates are the sheep and goat with a clear preference for sheep in the three cultural periods. Hunting of gazelles seems to have been a more or less constant activity although not so important; As well as the hunting of wild goat and sheep, in the foothills. The probable presence of horse in the late Namazga IV period is one of the interesting highlights of this study.

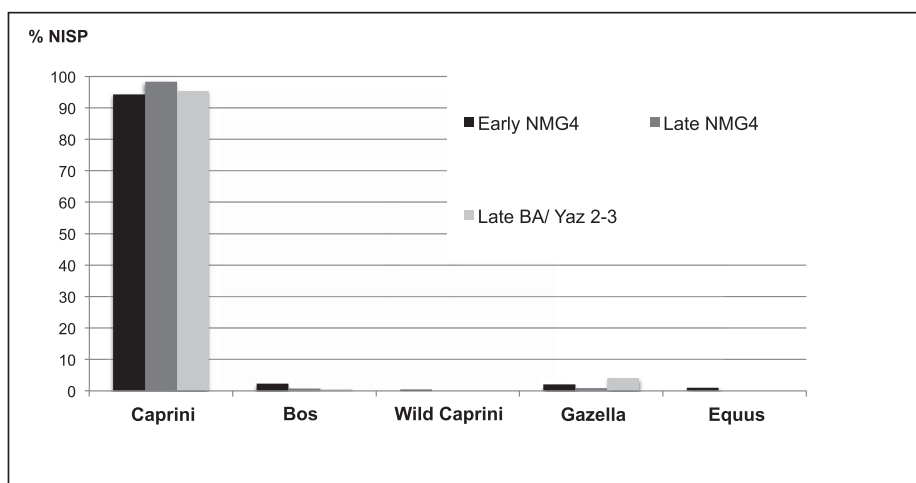


Fig. 10. Distribution of economically important species in the three cultural periods of Tepe Damghani.

The geo-archaeological study of the site and its environment conducted during the field season tackled the issue of the water resources in the area since the Bronze Age (Fouache *et al.*, 2010). A geomorphological survey evidenced that the Plio-Quaternary horst of Sabzevar played a significant role in providing water in the whole area from the Bronze Age. At the back of the horst, a graben has been discovered, housing an important water table in its Quaternary alluvium: the overflowing of the water table provided a perennial flow of water for the site during the Bronze Age within the Kal-e Shur river system. The development of the *qanât* system (probably dug during the Achaemenid period) allowed irrigation of the whole hillfoot of the Sabzevar horst, but in return provoked a lowering of the water table level, that massive pumping worsened; this level is currently to approximately 150 m of average depth.

Conclusions

In sum, the preliminary conclusions resulted from the first season of sounding at Tepe Damghani and investigation of nearby areas shows that the residents of the region of Sabzevar during the third millennium BC settled in parts of the plain in which the exploitation of surface water was possible. At this time, the environment of the area was richer and more varied than it is today and that the types of riparian, steppe and steppe forest formations were growing and the subsistence economy of the plain's residents was firmly based on cultivation of cereal crops (wheat and barley) and livestock (sheep and goats). However, the presence of fruits and seeds of wild types of plants such as pistachio and hackberries and also the bones of the wild sheep and wild goat, gazelle, and Persian onager shows that the Bronze Age residents of Tepe Damghani exploited several type of ecological zones in the surrounding of the site, including the piedmonts and steppe natural resources.

The presence in the site of various stone vessels and artifacts from alabaster, serpentine, ophiolite and other colored stones, sources of which are in the region (some of which we visited), show that the residents of Tepe Damghani extracted stone from local mines and used it to manufacture various types of vessels and tools, although during this season no workshop area was uncovered. On the other hand, the similarity of the pottery from different archaeological layers as well as surface finds from Tepe Damghani with those of Shahr-e Sokhta III, Mundigak IV and Namazga

IV and some of the other sites in northern Greater Khorassan across the border in today's Turkmenistan, is indicative of the cultural connections and exchange between these nearby regions. As we described above, these similarities can also be seen in the stone chipping industry, glyptic and metalworking technologies.

Undoubtedly, the strategic geographical location of Sabzevar on the major trading road between east and west and the richness of the region in terms of its mineral sources and deposits (ophiolitic belt of Sabzevar and the turquoise mines of Nishapur) are among the major factors which caused this region in general and Tepe Damghani in particular to play a role in the expanding exchange network during the third millennium BC. Obviously, in the future, with further investigations in the region, we will be able to answer many questions regarding the connections between east and west and the nature of the cultural interaction between Iran and Central Asia during the Bronze and Iron Ages.

Acknowledgements

This project was done under the auspices of the Iranian Center for Archaeological Research (ICAR) and benefited from the financial support of the French Ministry of Foreign affairs under the MAFAC program (director Henri-Paul Francfort). Mohsen Dana, Sa'id Shanjamali and Mohammad Abdullahzadeh and M. Mottaghi, topographer, were participating in the fieldwork. A preliminary translation of the first part of this paper from Persian to English was undertaken by Kyle G. Olson from Ohio State University. Dr. Christopher P. Thornton from University of Pennsylvania Museum kindly read the paper, gave useful comments and polished the final text. We would like to gratefully acknowledge all the people who have helped us to accomplish this project, especially Dr. Hasan Fazeli (then director of ICAR, Tehran); Mr. A. Mokarramifar (then director of ICHHTO, Mashad) and Mr. Bakhtiari (ICHHTO office, Mashad).

Sample	Stratigraphic Unit	Radiocarbon Age BP	2 Sigma cal BC	2 Sigma cal BC	2 Sigma cal BC
Beta-259706	US02 (bone collagen)	2870+/-40	1380-1120		
Beta-259707	US20 (bone collagen)	4020+/-40	2880-2580		
Beta-246225	US26 (charred material)	4090+/-40	2870-2800	2780-2560	2520-2500
Beta-246226	US29 (charred material)	3840+/-40	2870-2800	2780-2560	2520-2500
Beta- 246228	US31 (charred material)	4070+/-40	2880-2610	2600-2590	
Beta-246229	US35 (charred material)	4200+/-40	2900-2840	2810-2670	
Beta-259708	US37 (charred material)	4070+/-40	2910-2860	2800-2750	2710-2710
Beta-246231	US39 (charred material)	4000+/-40	2910-2850	2810-2750	2720-2700
Beta-246232	US39 (charred material)	3940+/-40	2880-2610	2600-2590	
Beta-259709	US40 (charred material)	4190+/-40	3010-2970	2960-2880	
UBA-9975	US40 (bone)	4095+/-38	2866-2804	2776-2768	2524-2496

Table 1. C14 dates – simplified chart – from period II and III Tepe Damghani
(NB: Ten by Beta Analytic Inc. one by the University of Belfast).

Trench		1																				
Period		II										III										
Level		2		3			4			NA	%	5					6	NA	%			
Statigraphical Unit (SU)		40	39	38	37	36	35	33	31	30	29			26	24	23	20	15	9	3		
Sample n°				24	25	23	20	18	17	22	14	12		10	9	8	7	5	4	1		
Riverine	Russian olive/ Sea buckthorn	1		2	1	7	3	2	1	12					2		3				3,9%	
forest	Ash					2						2	4								0,0%	
	Poplar		2			2	2	4	2	1	2	15	5,6%				2				1,6%	
	Tamarisk	1	11	10	13	10	12	18	11	12	10	108	40,1%	21	22	1	17	10		2	73	57,0%
Total riverine forest		2	13	12	14	21	17	24	14	25	14	156	58,0%	24	1	22	10		2	59	46,1%	
Open shrub- and woodlands	Hackberry		2	7	1	3				1	3	17	6,3%	5	2	1	5	10	1		24	18,8%
	Goosefoot family	2	14	1	5	6	11	5	3	11	21	79	29,4%	6	2	1	5				14	10,9%
	Wolfberry						1			1	3	5	10	3,7%	1	1					2	1,6%
	Coniferous wood																	1		1		0,8%
	Pistachio		1				1			2		2	6	2,2%	5	4	1	10	8		28	21,9%
	Oak											1	1	0,4%								
Total open shrub- and woodlands		2	17	8	6	9	13	5	6	15	32	113	42,0%	17	9	3	20	19	1		69	53,9%
TOTAL		4	30	20	20	30	30	29	20	40	46	269	100%	17	33	4	42	29	1	2	128	100%

Table 2. Results of the charcoal analysis at Tepe Damghani expressed in absolute (N) and relative (%) numbers of charcoal fragments identified for each taxon.

Taxa	Early NMG4/ Damghani II		Late NMG4/Damghani III		Late BA/ Yaz 2-3/Damghani IV		Total
	NF	%	NF	%	NF	%	
<i>Caprini</i> (Sheep/Goat)	799	76,8	547	84,5	147	75,4	1493
<i>Capra</i> (Goat)	75	7,2	32	4,9	10	5,1	117
<i>Ovis</i> (Sheep)	95	9,1	57	8,8	29	14,9	181
<i>Bos</i> (Cattle)	24	2,3	5	0,8	1	0,5	30
<i>Ovis cf orientalis</i> (Wid sheep)	2	0,2	0	0,0	0	0,0	2
<i>Capra aegagrus</i> (Wild goat)	2	0,2	0	0,0	0	0,0	2
<i>Gazella</i> (Gazelle)	21	2,0	6	0,9	8	4,1	35
<i>Equus</i> (Horse, Hemione, Ass, Hybrids)	10	1,0	0	0,0	0	0,0	10
<i>Testudo graeca</i> (Greek Tortoise)	13	1,2	0	0,0	0	0,0	13
Total	1041	100,00	647	100,00	195	100,00	1883
Small Ruminant (<i>Caprini</i> , <i>Gazella</i>)	305		297		83		685
Large Mammal (<i>Bos</i> , <i>Equus</i> , <i>Camelus</i>)	201		12		7		220
Medium Mammal (Dog/Sheep size)	624		203		113		940
Unidentified specimens	418		450		122		990
Total	1548		962		325		2835

Table 4. Faunal spectra of Tepe Damghani.

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Pl. 1. General view of Tepe Damghani showing location of Trench 1, view from the South.



Pl. 2. A view of Trench 1 before excavation.



Pl. 3. General view of the N section on the edge of Delqand Road after cleaning, view from the N.



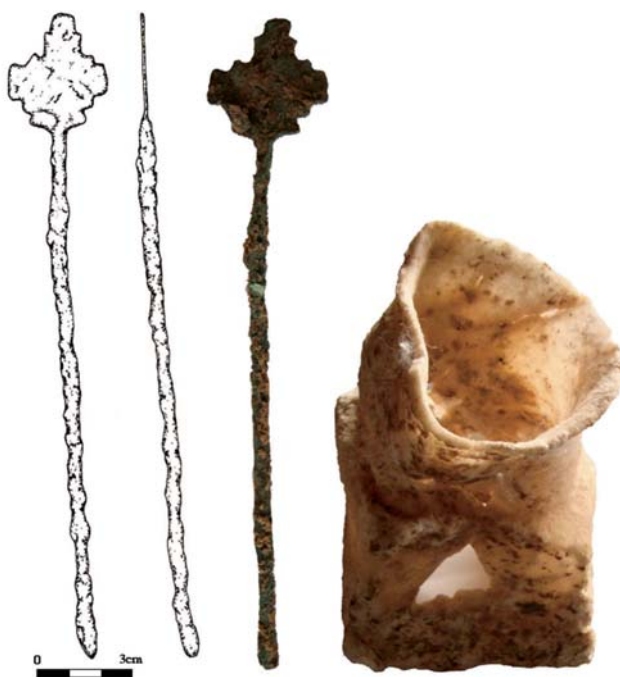
Pl. 4. General view of grave 2 after cleaning (N.B. lower part of the grave and the skeleton has been destroyed during construction of Delqand Road).



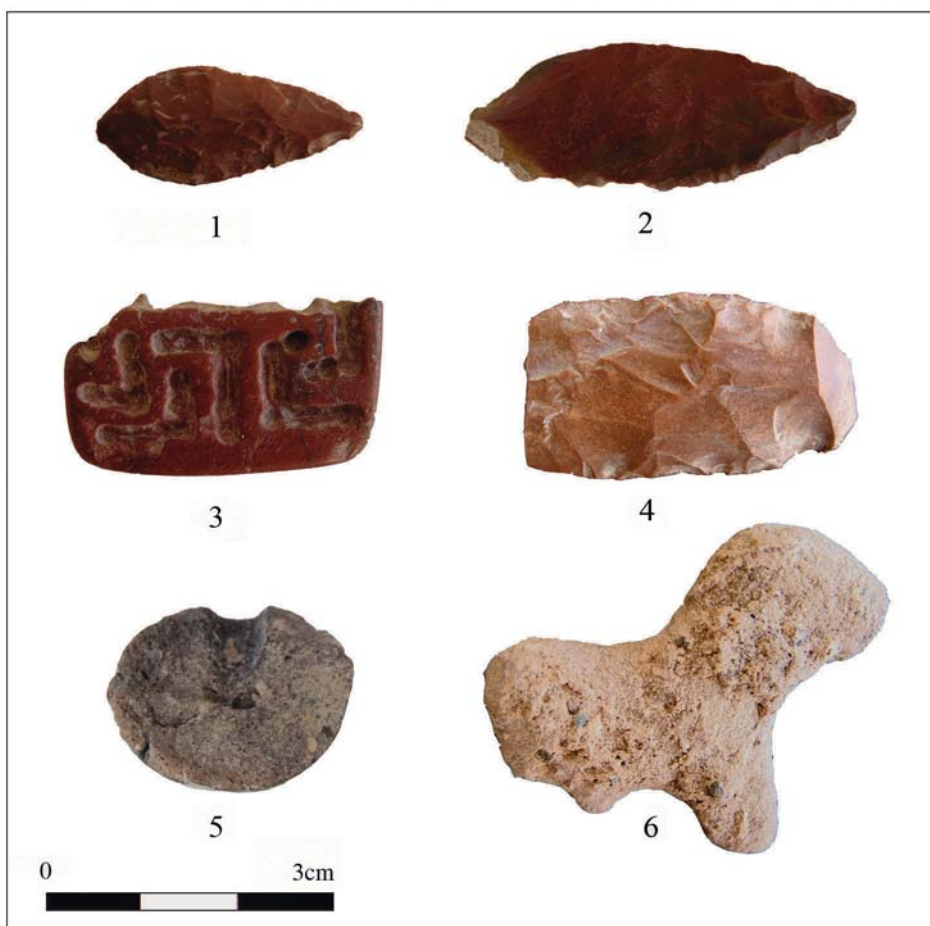
Pl. 5. Position of skeleton in grave 2.



Pl. 6. Cubic stone vessel and bronze pin of grave 2 *in situ*.



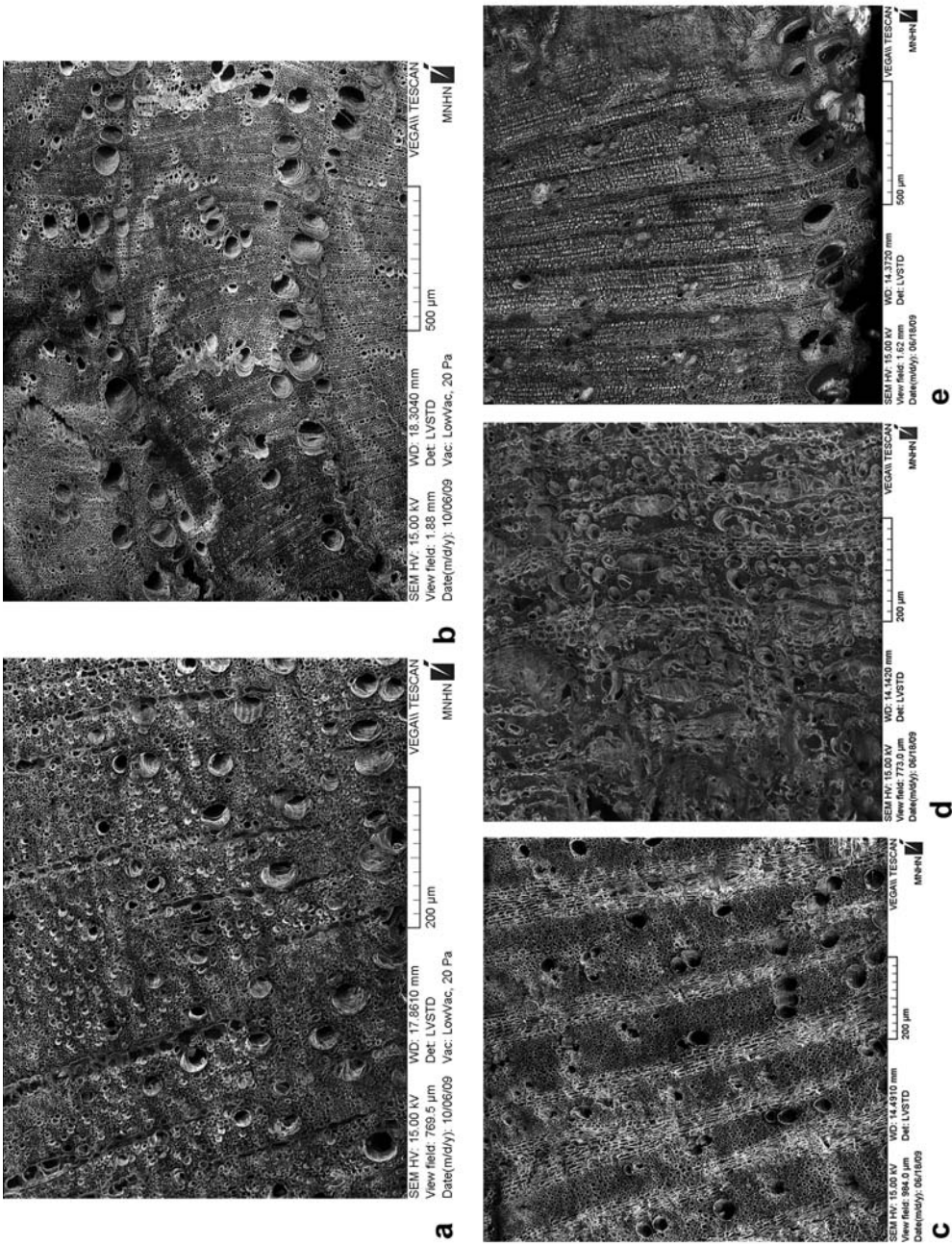
Pl. 7. Stone vessel and bronze pin from grave 2.



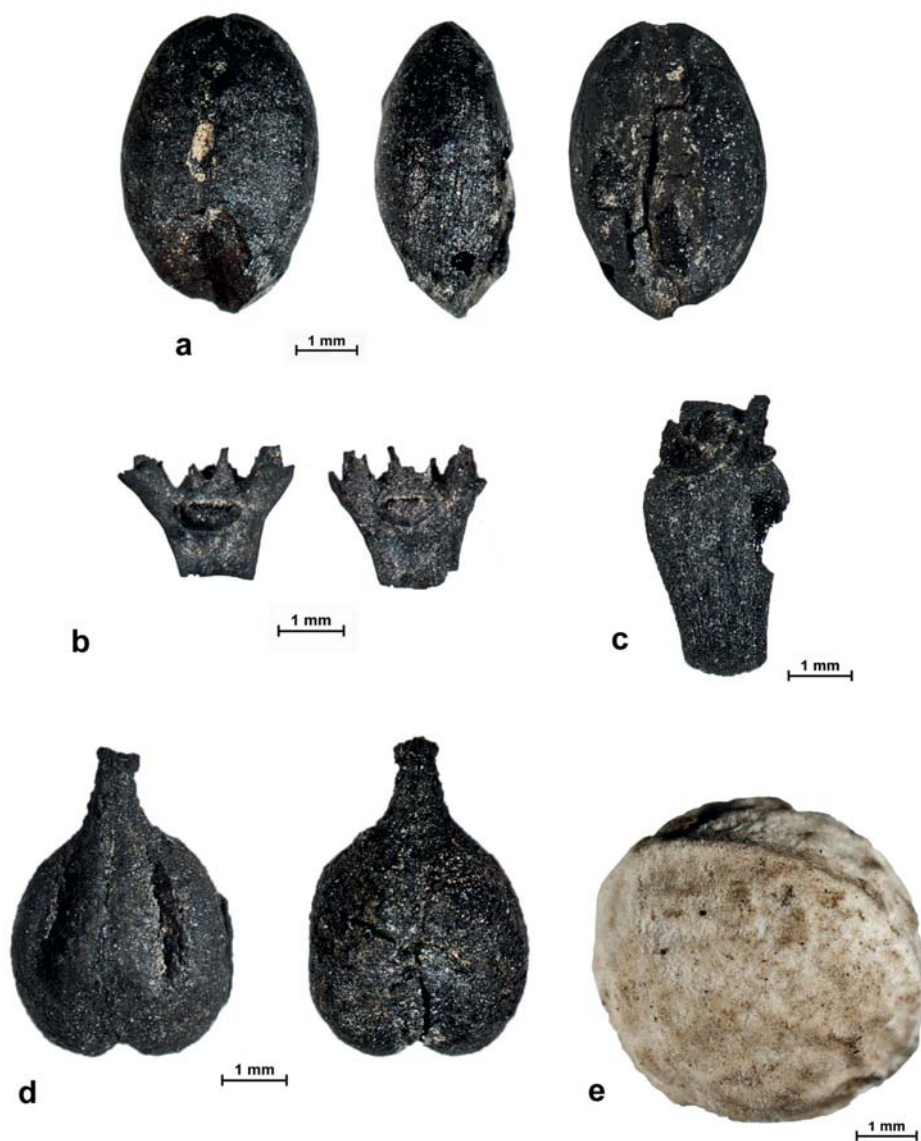
Pl. 8. Small finds from Trench 1, Tepe Damghani.



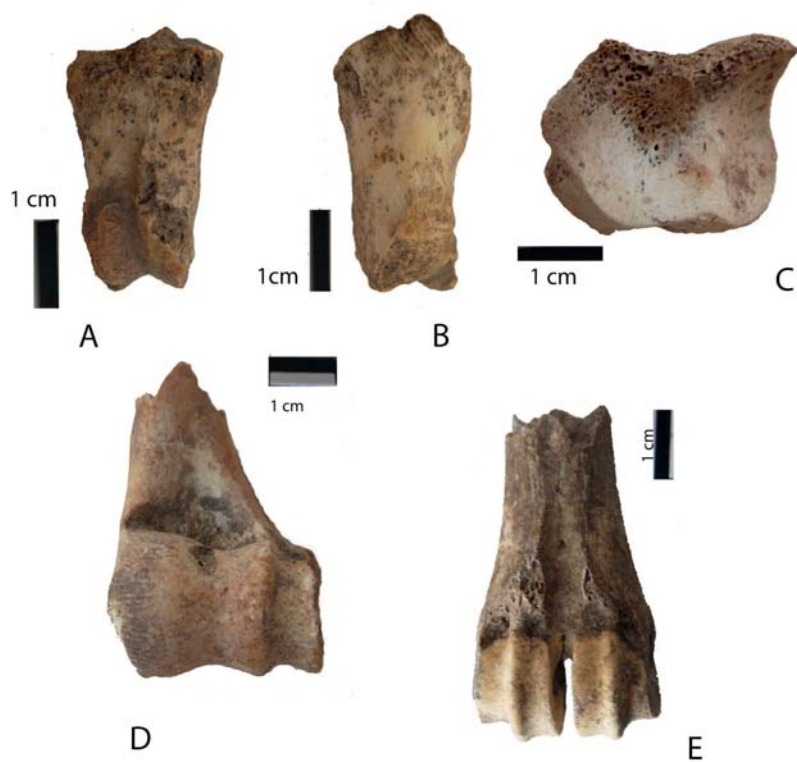
Pl. 9. Painted bowl from surface survey of Tepe Damghani.



Pl. 10. SEM photographs of charcoal fragments from TepeDamghani: a. Russian olive/Sea buckthorn (*Elaeagnus/Hippophae*); b. Wolfberry (*Lycium* sp.); c. Tamarisk (*Tamarix* sp.); d. Pistachio (*Pistacia* sp.); e. Hackberry (*Celtis* sp.).



Pl. 11. Seed and fruit remains from Tepe Damghani: a. Dorsal, lateral and ventral view of barley grain (*Hordeum vulgare*, SU 35); b. Rachis segments, free-threshing, six-row barley (*H. vulgare* subsp. *hexastichum* var. *nudum*, SU 35); c. Rachis segment, free-threshing wheat of bread wheat type (*Triticum aestivum*, SU 31); d. Ventral and dorsal view, grape seed (*Vitis vinifera*, SU 26); e. Mineralised fruit stone of hackberry (*Celtis* sp., SU 40).



Pl. 12. A & B- Second phalanx of a caprine from US 20, digested and bearing rodent incisive marks.

C- A digested cubonavicular of a caprine from US 40.

D- A Distal Humerus (US 36) and Metapodial (US 26) of Gazella.

ZAR BOLAGH: A LATE IRON AGE SITE IN CENTRAL IRAN

BY

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Abstract: Zar Bolagh is located in the north of Qom province, central Iran. The site is known for its stone structure, which after its abandonment was deliberately filled with stone and gravel, similarly to Nush-i Jan, before finally being entirely covered by two thick stone and mud brick walls founded by mortar. In the winter of 2006, and under Malekzadeh's supervision, Zar Bolagh was investigated. During the course of excavation the team found valuable architectural elements comparable with other religious monuments in central Iran. This paper presents some preliminary results from the first season of excavation in Zar Bolagh, consisting of cemetery data and architectural remains. According to the pottery assemblage sequence this site can be dated to as early as the Late Iron Age.

Keywords: Iranian central plateau, Iron Age III, Zar Bolagh.

Introduction

Zar Bolagh (located at 35°1'25.4" longitude and 50°5'85.7" latitude, and approximately 1308 m above sea level) is situated in the valley of Aliabad, 45 km north of Qom and 65 km south of Tehran, in the Iranian central plateau (fig. 1: A, B). Zar Bolagh is comprised of several mounds as in an extensive site. "Zar Bolagh" is a local Turkish name, meaning "yellow spring", and is likely derived from the small spring that exists at the south-eastern slope of the main mound. There is also a small seasonal river flowing along the southern side of the site in an eastward direction, which separates the main mound from the cemetery.

Located at the western border of Dasht-e Kavir, Qom province is not a fertile region, due to low precipitation, a shortage of proper agricultural soil and large permanent rivers. The unfavourable environmental conditions render agricultural activities uneconomical. The main cause for the emergence of settlement in this region would therefore appear to be a result

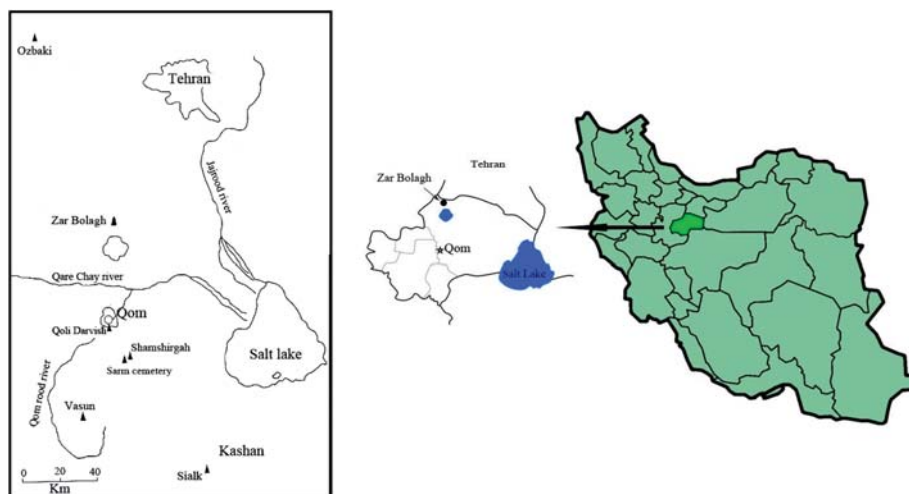


Fig. 1. A: Map showing the location of Zar Bolagh, Vasun and neighboring Late Iron Age sites in Central Iran (after Fahimi 2004), B: Map with location of Qom Province and Zar Bolagh site.

of its lying at the crossroad of both the major east to west and north to south communication routes of Iran. In fact, this region functions as an intersection for transit and trade in the Iranian plateau.

On top of the main mound, to the east of the site, there is a single large stone structure; and the site's renown is derived from the existence of this structure (fig. 2: A, Pl. 2: A, B). The site is entirely covered with potsherds, with a high accumulation around the stone structure. To the southwest of the structure, within a distance of 500 m, lies the Zar Bolagh cemetery (fig. 2: A, Pl. 7: A). At nine points this area has been excavated illegally, and the remains of graves are exposed in at least three of these points. These graves are oval stone structures covered with pottery and bone fragments peripherally.

Archaeological Investigations

Background

Excavated and looted by local people, the location of the site was first discovered by those seeking items for financial gain. Nothing is known about their findings, but the extent of destruction from the illegal excavations

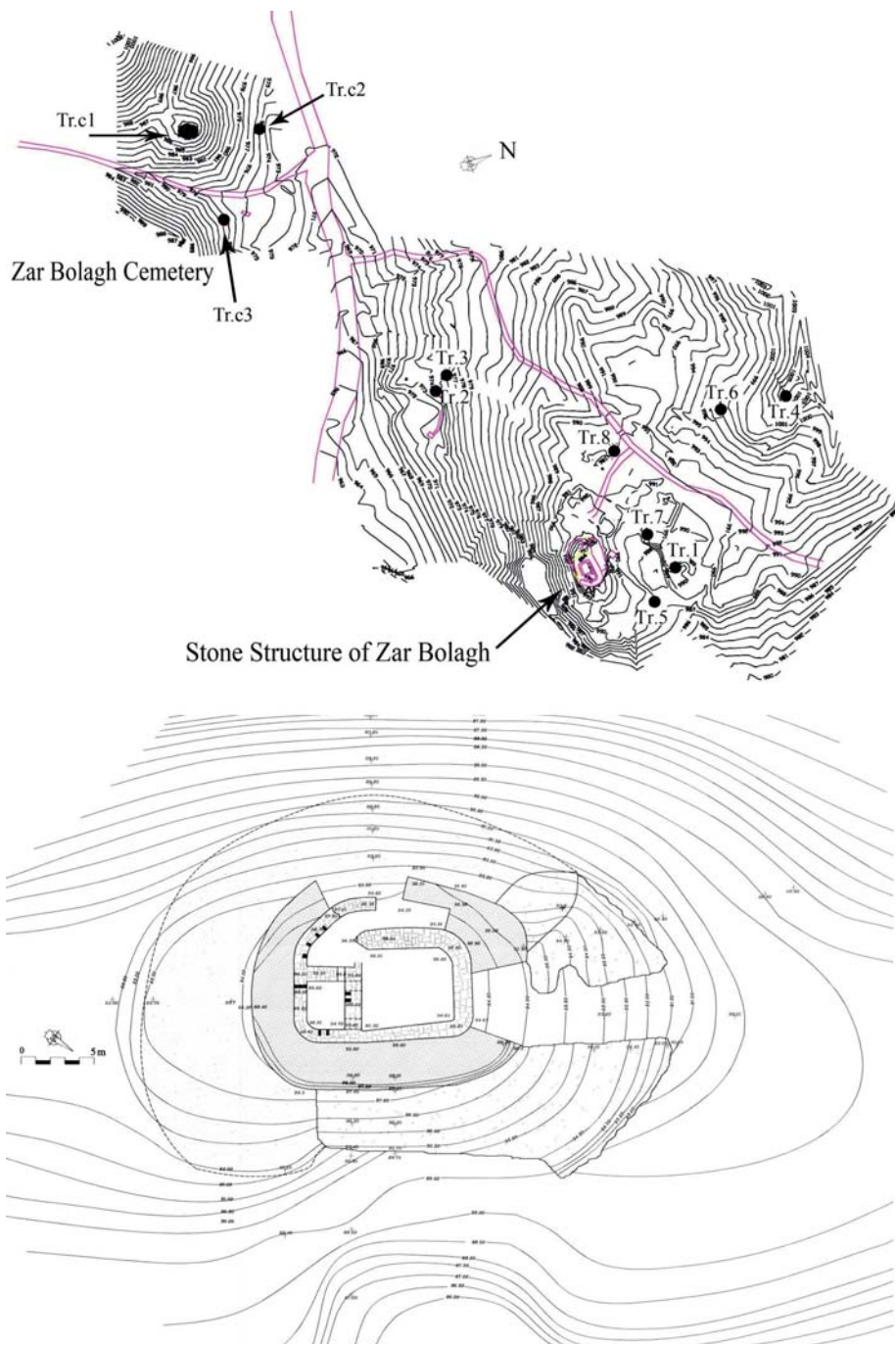


Fig. 2. A: Topography of Zar Bolagh and location of trenches,
B: Plan of the stone structure at Zar Bolagh.

caused the Iranian Archaeological Service to launch a commercial excavation project in order to save the remaining items. The late Abdol-hosein Shahidzadeh excavated the untouched parts of the site in 1966. The results of this work have remained unpublished; however, several pictures and short notes are available. Based on these, the site could be dated to the Seleucid period. There were no further archaeological activities at the site. In the winter of 2006, and after such a long cessation, Malekzadeh resumed investigations at Zar Bolagh, including topographical mapping, simple random sampling survey and the excavation of some trenches at both the main mound and cemetery. It should also be noted that Abedi Amin and Kaboli visited the site in the 1990s and surveyed it separately. They did not excavate, however based on some architectural remains and observations of potsherds they suggested that the site could be dated to the Iron Age III, Median period (Kaboli 1999).

Stone structure

The Zar Bolagh structure is rather complicated and is made almost entirely of irregularly cut stone blocks and mud mortar. It is usual in the Late Iron Age architectural tradition, particularly in western Iran. Although most Iron Age III (Median period) structures are made of mud brick in the western and central plateau of Iran, for example Godin II (Young 1969; Young & Levine 1974), Baba Jan II and III (Goff 1969; 1970), Nush-i Jan I (Stronach & Roaf 2007), the Grand Structure of Sialk's southern mound (Ghirshman 1939), the Median Fort of Ozbaki (Madjidzadeh 2010a), and also Mannean structures at Qalaichi (Kargar 2004), Ziwiye (Motamedi 1997) and Agrab Tepe (Muscarella 1973), in various areas of the region stone was used as the main construction material. Stone structures are clustered in several locations within the Zagros range and Iranian central plateau. Mannaean structures at Zendan-e Soleyman (Naumann 1977) and Qal'e Bardine (Hassanzadeh 2009) south of lake Urmia, Bisutun Median fort (Kleiss 1996) in Kermanshah; Sorkhdom-e Lori temple (Schmidt *et al.* 1989) and Sorkhdom-e Laki manors (Shishegar 2005), both in Luristan, structures at Giyan II in Nahavand plain (Contenau & Ghirshman 1935) and Shamshirgah Fortress (Fahimi 2004; 2010), south of Qom, can be named as some examples.

With an irregular oval shaped structure, the Zar Bolagh building has dimensions of approximately 12 m in length and approximately 7.5 m in

width (fig. 2: B). On the basis of available evidence, it is safe to suggest that the building had a second storey. Impressions of an upper floor are visible on top of the ground floor walls, and the existence of a few beam-holes in the walls (Pl. 4: B). Furthermore, threshold remains of the second storey could be traced on top of the walls. As can be seen in figure 3, the ground floor plan, composed of two rooms, is simple. One of the rooms, with an area of approximately 25 m², is relatively large. The other room is smaller, with dimensions of 3 × 3.5 m. The only threshold to the smaller room is in the eastern wall of the larger room (Pl. 4: C). This joint wall, which survives to 8 m in height, represents the highest preserved wall in the building. Based on the commercial excavation photographs taken in 1966, there was a triangular niche in the wall of the smaller room that is now completely destroyed and invisible.

The main building entrance is located in the south façade of the structure (Pl. 4: A). The entrance does not open directly into the large room but, with a turn to east, leads to a convoluted corridor which conceals the building's interior rooms. The threshold for the large room lies exactly behind the corridor entrance and seems to be in an arch shape. It seems that the

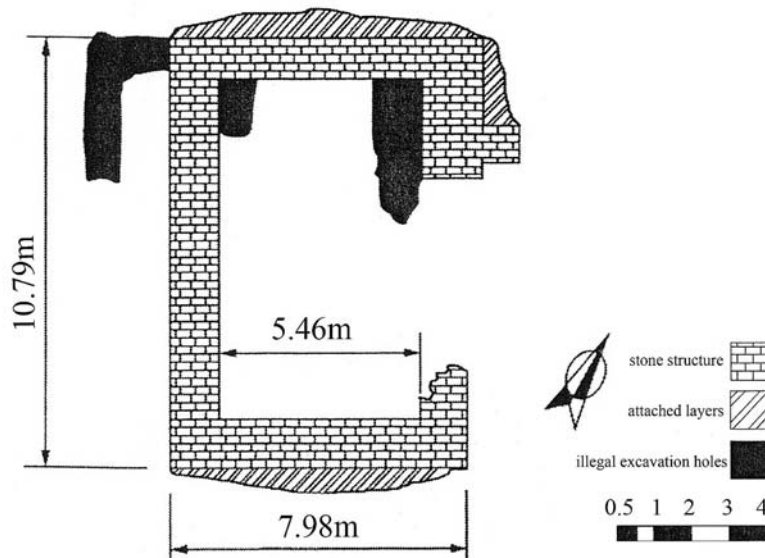


Fig. 3. Sketch plan of Vasun-e Kahak structure.

structure's south section opens up from the corridor, which leads to the rooms at the east and to the second storey or roof from the west side, by a steep staircase.

As noted above, our knowledge from the earlier commercial excavations does not go much beyond some pictures. Presumably after that time the building's interior space was cleared of debris (hereafter described as deliberate filling); nevertheless the floor has not been exposed anywhere. Therefore, to identify the walls' real height further excavation is required. The wall thickness varies from 1 m to 2 m, and it should be noted that in constructing them a high degree of craftsmanship was employed. The structure was once exposed, but was subsequently and deliberately covered and hidden.

It seems to be of most importance that, much like at Nush-i Jan (Stronach & Roaf 2007; Curtis 2005), the Zar Bolagh structure appears to have been intentionally abandoned and filled entirely with shale and splinter, to the ceiling. Furthermore, the whole structure was covered after filling, with two separate stone and mud brick layers, attached to the main walls (fig. 2: B, Pl. 1: A, B & Pl. 3: A, B). Covering the western, eastern and northern walls, the first layer is completely made of stones, large and medium in size, and mud mortar. The thickness of this layer is 2 m – 3m (Pl. 1: A, B, Pl. 5: A, B). In a better condition of preservation, the second layer at the western and northern part is mud brick with clay mortar, which in some parts is even thicker than the mud brick itself (Pl. 1: A, B, Pl. 5: A). The thickness of this layer ranges between 8 m and 10 m, and the mud brick dimension are $40 \times 40 \times 12$ cm and $35 \times 35 \times 9$ cm. These two covering layers unfortunately have been much disturbed, and the only possible way to identify their nature is by looking at profiles cut by construction machinery (fig. 2: B, Pl. 3: A). Probably due to the mound slope and later disturbances, the remnants of these layers are poorly preserved in the south wing, and partly ruined. Zar Bolagh inhabitants in this part of the mound, overlooking a steep valley, possibly used a stairwell to enter the building.

Apparently, this double coverage layer encapsulated all of the structure in a dome form, which hid the building from view. Seemingly, the building was wholly and deliberately filled. However, later activities and excavation of the site have disturbed the interior space.

Interestingly, when Malekzadeh (2003) published the Zar Bolagh preliminary reconnaissance report, another stone structure was discovered at Vasun that strikingly had similarities with Zar Bolagh. Locally named as Qal'e Sangi (stone castle), it was located approximately 45 km south of Qom, and approximately 90 km south of Zar Bolagh (fig. 1: A).

The Vasun structure, perched on a high mound summit, is a single building with dimensions of 11 m \times 8 m. The walls had a thickness of 1.25 m and were approximately 10 m in height. It can be estimated from the evidence in several holes dug in the outer walls by looters, that but for the deliberate and intense filling and sealing of the building, only 5 m of the height can be measured. The structure was built of slabs, large and medium size, and shale with clay mortar. It seems the building had a second storey. The structure was wholly filled with mud and clay-like materials and surrounded by a thick wall, varying from 70 to 100 cm. The wall was constructed from mud and stone chips (fig. 3) (Malekzadeh 2004: 43-46).

Here, what seem of high importance are the close similarities between the structures of Vasun and Zar Bolagh. Like Zar Bolagh, Vasun was interiorly filled up to 8-10 m in height, and further the structure was wholly covered and hidden by stone and mud walls. The differences between the two buildings are primarily with regard to shape; Zar Bolagh is oval and Vasun rectangular. Furthermore, it should be added that workmanship was employed more skilfully than at Zar Bolagh.

Random sampling survey and soundings at the main mound

The first stage in the archaeological investigations at Zar Bolagh was random sampling survey. After topographic mapping, the site, excluding the cemetery, at about 7.5 ha extension, was divided into 750 10 m \times 10 m squares. With a high concentration around the stone structure, 40 squares (approximately 5.3% of units) were randomly chosen for sampling. Distribution patterns were not analysed, although in all of the chosen squares' archaeological artefacts were collected. This was, unfortunately, due to the significant disturbance of surface material as a result of illegal excavations and recent machinery activity.

Following survey, a total of eight test trenches of 2 \times 2 m were opened (fig. 2: A). Unfortunately much of the excavated area was heavily disturbed by recent machinery activity and construction works, and among the

eight trenches only three (test trench numbers 1, 5 and 7) were undisturbed. These three small trenches were dug at the north and northeast of the stone structure to clarify the nature of possible walls and other structures that were visible on the surface of this part of the site. The findings from these three test trenches are described here:

Test Trench 1

This test trench was located 45 m to the northeast of the stone structure. At a depth of 14 cm below the surface the remnants of a wall, running east to west, were exposed, composed of two rows of $40 \times 35 \times 12$ cm mud bricks (Pl. 6: A).

Test Trench 5

In this trench, 30 m to the east of the stone structure, a line of mud bricks forming part of a wall, running roughly east to west, were identified just 8 cm below the top soil. The mud bricks were $40 \times 38 \times 12$ cm in dimension and the wall was constructed in the same fashion as the wall of test trench 1 (Pl. 6: B).

Test Trench 7

Test trench 7 was located 30 m to the north of the stone structure and its upper layers had been much disturbed. 90 cm below the surface a burial was identified and outlined, without any special grave structure. Of interest is the fact that the grave structure was a simple pit cut through a mud brick wall, showing that the burial was later than the wall. Parthian potsherds, found around the burial, confirm this hypothesis. The skull and some other elements were laid outside of the trench, and the trench was therefore extended 1 m southward in order to clarify the skeletal remains.

The occupant of the grave was lying prone with fully extended body and legs, on its left side. The head was orientated facing southward towards the Zar Bolagh structure (Pl. 7: B). Presumably the body was wholly wrapped up into a cloth because the skull and elements were pale blue in colour; however, no remains of cloth were discovered on the skeleton.

After uncovering and removing the skeletal remains, the mud brick wall was exposed. It was constructed of mud bricks in the same size and forms of test trenches 1 and 5, and seemingly is related to them.

However, the limits of excavation did not allow us to determine the stratigraphic relationships amongst the walls. The nature of the walls and how they relate to the large stone structure is therefore ambiguous but these walls probably belong to the same structure, and are part of a peripheral defensive wall around the stone structure.

Zar Bolagh Cemetery Excavations

Zar Bolagh cemetery is located on the west bank of the small river, 500 m to the southwest of the stone structure. It could have been related to Zar Bolagh as the finds of this graveyard are virtually identical to that of the main mound. In order to identify the graves and their structures we laid out three trenches (C1, C2 and C3), separately, in three different part of the cemetery (fig. 2: A).

Trench C1

The dimensions of trench C1 were 10×3 m. It was opened in the centre of the mound, which had previously been dug by looters and as such some remains were exposed. In trench C1 two graves were identified, described as following.

Grave number 1

This grave has an oval stone revetment, 154×96 cm in size, which was exposed at 105 cm below the surface of the mound (Pl. 8: A). The burial pit was cut through the loose bedrock and then some sub-angular stones were laid, in the shape of an oval, to define the grave area. The grave was covered with a layer of tight mud and small stone chips, unlike most of the graves at the Zar Bolagh cemetery, which were capped with a large stone slab.

A male was buried in an embryonic position in the grave, oriented northeast-southwest. Of interest in this burial is the existence of an ash layer of 2 cm thickness both over and under the skeleton. In addition to the discovery of pottery with parallels at the main mound, a bronze bracelet and an iron ring were found.

Grave number 2

Much like grave number 1, this grave has an oval-shaped stone structure, measuring 130×70 cm, and was capped with a large limestone slab (Pl. 8: C). This stone slab was documented at the depth of 139 cm below

the surface. After the removal of an ash layer of 5 cm a burial was identified. The burial, lying on its left side, had a northwest-southeast orientation and was again buried in embryonic position (Pl. 8: D). The skull and skeletal remains were deteriorated and their recovery was difficult. A bronze bracelet with snake-shaped ends, measuring 5 cm in diameter (Pl. 8: B) and also a badly preserved bronze earring were discovered in this grave, in addition to pottery fragments. Like grave number 1, grave number 2 was dug into loose bedrock. After placing the body in the tomb, the grave was wholly covered with a layer of ash.

Covering the burial with an ash layer is reminiscent of some possible relation to cremation rites, and could possibly be interpreted as a religious funerary ceremony in the Iranian central plateau, as it is reported from two other Iron Age sites: Sagzabad in the Qazvin plain and Sarm Cemetery, southwest of Qom (Tala'i 2008: 127).

Trench C2

This trench of 4×2 m was made on a gentle slope of the north section of the mound where that grave was previously plundered by illegal diggers. At the depth of 53 cm below the surface, a large stone slab of a grave, $62 \times 39 \times 7$ cm in size, was documented which covered an oval-shaped stone structures much like the grave structures of trench C1 (Pl. 9: A). The corpus had north-south orientation while its head was placed eastwardly and was buried in embryonic position. Apart from potsherds that are reminiscent of those of the main mound, no grave goods were discovered in this burial.

Trench C3

Another burial was exposed in the 4×2 m trench C3, opened at the eastern side of the cemetery. The burial was laid in an embryonic position and placed in a simple, almost circular pit, dug into the ground at a depth of 40 cm below the mound surface, with no stone structure or stone slab. The grave goods of this burial are noteworthy and helpful for dating. A handled jar and small red jar, which are different from the ceramics found around the stone structure, were found near the knees of the burial, and perhaps more importantly there was a bronze coin at the back of the body, belonging to the Parthian period (Pl. 9: B).

The structure and also the ceramics of this grave are different from those of trenches C1 and C2. Belonging to the Parthian period, this burial is probably later than the other uncovered burials and presumably contemporaneous with the grave of test trench 7 which, as we stated earlier, was a simple pit cut into the mud brick wall north of the stone structure.

Pottery

Unfortunately none of the ceramic assemblages of the Iron Age III sites of the Iranian central plateau (Tepe Sarm, southwest of Qom; Sagzabad in Qazvin plain; the Median fort of Ozbaki, west of Tehran; the fortress of Shamshirgah, south of Qom; Tepe Qoli Darvish, southwest of Qom and Sialk Necropolis B in Kashan) have been studied in chronological context so far and with stratigraphic designation. Therefore a ceramic assemblage typology and classification for Zar Bolagh is significantly important.

During the Zar Bolagh investigations, 9869 potsherds were collected in total. This assemblage could be classified into three general groups based on their colour and surface characteristics: buff ware (69%), red ware (19%) and grey ware (11%). The buff ware colour varies considerably from light through simple buff to brown buff. The red ware paste and slip colour varies from simple red to brick red, and grey ware fall into two categories: light and dark gray ware. In 82% of the samples the outer and sometimes the inner surfaces are covered with a thick slip, or washed mostly in the same colour as the paste. Polishing and wet smoothing occurs very often and more than 6% of the sherds, mostly buff ware, are burnished. Most sherds have well-levigated and homogenised paste and are of good and compact fabric. The clay is usually tempered with minerals (medium to fine sand and grit) and sometimes this temper is limestone and mica. The use of mica as a temper is visible in 18% of all Zar Bolagh sherds, and following Louis Levine's paper this is of paramount importance (Levine 1987). Traditionally, using mica has been considered as characteristic of Iron Age III potteries. However, recent studies (Alizadeh 2004) have revealed that this theory is no longer valid and mica tempered pottery cannot be picked out as a hallmark of Iron III ceramic assemblages only, as it is observed in earlier and later periods.

Coarse ware is uncommon (less than 4%) and mainly consists of large vessels and cooking wares. Common wares comprise the majority of the assemblage (66%) and fine ware makes up some 29% of all sherds. Very

often fine wares are covered with slip and burnished. Interestingly, the coarse kitchen ware and large storage vessels are low in terms of representation in the assemblage (about 3%). More than 97% of sherds are wheel-made and most vessels are well-fired.

As at other Late Iron Age sites in Iran, Zar Bolagh potsherds are plain and just 1.5% of all sherds are decorated with incised or impressed patterns and also cordage motifs (Pl. 14: 6, 9, 13 and 14). It is of interest that these decorations are often found on the large storage vessels and are very rare on the common and fine wares. Eleven painted sherds were found, having buff slip with black and brown designs. The motifs are geometric although these sherds are not large enough to identify their original painted motif. It needs to be noted that these painted sherds have no equivalent in the Iron Age ceramics of central Iran.

Shapes

Although no complete vessels were recovered, based on rim form and wall shape the Zar Bolagh ceramic assemblage can generally be divided into three main shapes: a) bowls which are predominant types and make up some 53% of all vessels; b) jars (30%); and c) cooking pots (13%). Plates, strainers, vats and miniature vessels are also found, but rarely and in very low percentages. All the types appear in a wide variety of sizes and according to their rim form can fall into several main categories. In the following these three principal shapes are considered:

Bowls: everted rim bowls (Pl. 10: 1-10); inverted rim bowls (Pl. 10: 11-20); club rim bowls (Pl. 11: 1-7); simple round rim bowls (Pl. 11: 8-12); doubled rim bowls (Pl. 11: 13-16); straight rim bowls (Pl. 12: 1-5); "S" carinated rim bowls (Pl. 12: 6-8); and horizontal handled bowls (Pl. 12: 9-11). The later bowls ("S" carinated rim bowls and horizontal handled bowls) are found at a wide range of sites and can be picked out as typical of the Iron Age III and IV sites of western Iran. In this regard it is significant that these two types are found at Zar Bolagh, as at the Iron Age III sites of central Iran they are considerably less common than those from western Iran.

Jars: flaring rim jars (Pl. 12: 12-17); high-necked jars (Pl. 13: 1-9); handled jars (Pl. 13: 10-13); and straight rim jars (Pl. 13: 14-19).

Cooking pots: closed cooking pots with internally inverted rim (Pl. 14: 1-4); cooking pots with a short everted rim (Pl. 14: 5-8); and doubled rim cooking pots (Pl. 14: 9-15).

Finally it should be pointed out that all the wares have either flat or rounded bases.

Chronology

The ceramic sherds must serve as the main source for relative dating at Zar Bolagh, in the absence of radiocarbon determination or distinctive small finds. Based on factors such as colour, manufacturing quality, surface characteristics, and the form of the Zar Bolagh sherds, the ceramics are homogeneous and represent a single cultural group. In addition, archaeological investigations indicate that the Zar Bolagh structure probably represents only a single period of occupation, as no evidence of architectural rebuilding is visible and no sequence of occupational debris can be traced in any of the exposed sections of the test trenches.

The Zar Bolagh pottery assemblage is virtually identical to that of the Late Iron Age III sites of the western and central plateau of Iran and, as defined by C. Young, belongs to the “late buff ware horizon”. Many of the same period sites, as can be seen at Zar Bolagh, have not only the characteristic buff wares, but also the red-slipped wares, and a small quantity of burnished gray wares (Muscarella 1973). The Zar Bolagh assemblage has parallels in the central plateau of Iran, along with the sherds published from the Median fort of Ozbaki (Madjidzadeh 2010b); layers 13 to 15 of Sagzabad (Malek Shahmirzadi 1977); Sialk VI at the south mound of Sialk (Ghirshman 1939; Fahimi 2003); Shamsirgah Fortress (Kleiss 1983 and Fahimi 2004) and Sarm Cemetery. It also demonstrates close similarities with pottery assemblages at Nush-i Jan I (Stronach 1969; Stronach *et al.* 1978); Godin II (Young 1969; Young & Levine 1974); Baba Jan III and II (Goff 1969; 1970); Ziwiye and Hasanlu III (Young 1965; Dyson 1965); Sorkhdom-e Laki (Shishegar 2005); Qalaichi (Mollazadeh 2008); Zendan-e Soleyman (Boehmer 1988); Agrab Tepe (Muscarella 1973) and the Median fortress at Bisitun (Alizadeh 2004) in western Iran, that all date to the Iron Age III period.

The Iron Age III period can be divided into at least two identifiable ceramic horizons, as small differences could be distinguished amongst the pottery assemblages of early or late occupations at the sites of this period. For example, the small differences occur among the ceramic assemblages of primary occupations, inhabitants of the special buildings, and short squatter occupations at Nush-i Jan (Stronach 1969; Stronach & Roaf

1978); Baba Jan II and III (Goff 1969; 1970; 1977; 1978); the manor phase and squatter phase of Godin II (Gopnik 2005); Jameh Shuran II and III (Levine 1987); and also the upper and lower layers of the Median fort of Ozbaki (Madjidzadeh 2010b). As a whole, the Zar Bolagh pottery assemblage is very similar to these Late Iron Age III sites, and particularly the pottery of Median fort of Ozbaki, which was recently published in detail (Madjidzadeh 2010b). It should be stressed, however, that some Iron Age III ceramic types remain in use throughout the Achaemenid period, and some sherds from Zar Bolagh can be compared with Achaemenid pottery; for instance the Achaemenid pottery of the Fars region (Sumner 1986) and Persepolis Fortress platform (unpublished).

Based on this evidence, the Zar Bolagh assemblage can be dated to the late 8th to early 5th centuries, or the Median and early Achaemenid periods. Furthermore, in the Parthian period some parts of the site were used as cemetery.

Ceramic sherds	Parallels
Pl. 10: 1-10	Madjidzadeh 2010b, Pl. 71: 10 & Pl. 72: 18, 19; Malek Shahmirzadi 1977, fig. 148: 5; Stronach, <i>et al</i> , 1978, fig. 6: 15, 22; Young 1969, p. 119: 3, 13, 14, 17; Goff 1968, fig. 10: 4, 5, 6, 7; Mollazadeh 2008, Pl. 8: 4, 6, 13, 15; Muscarella 1973, fig. 16: 5, 6, 7; Shishegar 2005, fig. 91: 1, 8, 9, 10; Alizadeh 2004, Pl. 2: 4, 5; Sumner 1986, p. 6, ill. 2: L & p. 5, ill. 1:D.
Pl. 10: 11-20	Madjidzadeh 2010b, Pl. 72: 2, 4, 6, 7, 8 & Pl. 74: 9, 15; Malek Shahmirzadi 1977, fig. 148: 2; Stronach, <i>et al</i> , 1978, fig. 6: 2, 9, 11; Goff 1968, fig. 10: 9; Mollazadeh 2008, Pl. 7: 8, 9; Muscarella 1973, fig. 16: 4; Shishegar 2005, fig. 91: 25; Alizadeh 2004, Pl. 2: 6, 7, 8 & Pl. 5: 9; Sumner 1986, p.5, ill. 1:E, I.
Pl. 11: 1-7	Madjidzadeh 2010b, Pl. 72: 9, 11, 13 & Pl. 75: 10, 13; Malek Shahmirzadi 1977, fig. 148: 8; Stronach 1969, fig. 6: 1, 2; Young 1969, p. 119: 5; Mollazadeh 2008, Pl. 8: 8, 11, 12; Shishegar 2005, fig. 91: 13, 14, 24; Alizadeh 2004, Pl. 2: 10; Young 1965, fig. 1: 3; Sumner 1986, p. 5, ill. 1:T.
Pl. 11: 8-12	Madjidzadeh 2010b, Pl. 71: 3, 4 & Pl. 72: 12, 14, 16; Young 1969, p. 119: 2 & p. 123: 21; Goff 1970, fig. 7: 2, 3; Muscarella 1973, fig 15: 9; Shishegar 2005, fig. 91: 5, 7; Young 1965, fig. 1: 1; Sumner 1986, p. 5, ill. 1: F & p. 6, ill. 2:H.
Pl. 11: 13-16	Young 1969, p. 119: 11 & p. 123: 12; Mollazadeh 2008, Pl. 7: 7; Young 1965, fig. 3: 4.
Pl. 12: 1-5	Madjidzadeh 2010b, Pl. 71: 2, 8, 19 & Pl. 73: 2, 3 & Pl. 74: 5, 12; Malek Shahmirzadi 1977, fig. 148: 11; Fahimi 2003, Pl. 12: 6, 9; Goff 1968, fig. 10: 11; Mollazadeh 2008, Pl. 9: 13, 18; Muscarella 1973, fig. 16: 10; Shishegar 2005, fig. 91: 2, 4, 6; Alizadeh 2004, Pl. 2: 9, 11; Young 1965, fig. 3: 1; Sumner 1986, p. 6, ill. 2:P.

Ceramic sherds	Parallels
Pl. 12: 6-8	Madjidzadeh 2010b, Pl. 71: 9 & Pl. 73: 11, 15; Malek Shahmirzadi 1977, fig. 148: 9; Fahimi 2003, Pl. 12: 19 & Pl. 15: 9; Young 1969, p. 123: 7, 9, 11, 17, 18; Goff 1968, fig. 10: 1, 8; Mollazadeh 2008, Pl. 8: 2, 3 & Pl. 9: 4, 5, 6; Muscarella 1973, fig. 16: 5, 6, 7; Shishegar 2005, fig. 91: 17, 18, 19, 20, 21; Young 1965, fig. 1: 2, 4 & fig. 2: 6 & fig. 3: 6, 9, 11; Sumner 1986, p. 5, ill. 1:A & p. 6, ill. 2:C.
Pl. 12: 9-11	Madjidzadeh 2010b, Pl. 77: 1, 2, 3 & Pl. 82: 3, 6; Fahimi 2003, Pl. 13: 1, 2, 3, 4; Stronach 1969, fig. 6: 3-6; Young 1969, p.119: 16; Goff 1968, fig. 10: 12, 13, 14 & 1970, fig. 10: 4, 5; Shishegar 2005, fig. 97: 125; Alizadeh 2004, Pl. 2: 1, 2.
Pl. 12: 12-17	Madjidzadeh 2010b, Pl. 79: 1 & Pl. 84: 1, 3, 5, 8, 9; Fahimi 2003, Pl. 1: 1, 3, 5 & Pl. 2: 1, 3; Stronach, <i>et al.</i> , 1978, fig. 9: 1, 4, 7, 8, 9; Young 1969, p. 121: 2-4; Mollazadeh 2008, Pl. 9: 26, 28; Muscarella 1973, fig. 16: 5, 6, 10; Shishegar 2005, fig. 94: 64-69, 77-80; Young 1965, fig. 1: 9, 10; Sumner 1986, p. 5, ill. 1: P, U.
Pl. 13: 1-9	Madjidzadeh 2010b, Pl. 85: 1, 2, 5, 6, 8, 11 & Pl. 87: 11, 12, 14; Fahimi 2003, Pl. 12: 17 & Pl. 15: 15. Stronach, <i>et al.</i> , 1978, fig. 8: 5, 6, 7, 8, 9; Young 1969, p. 121: 8, 9, 10, 18; Mollazadeh 2008, Pl. 7: 1, 2 & Pl. 10: 15, 16; Muscarella 1973, fi. 16: 9; Shishegar 2005, fig. 96: 105, 106; Young 1965, fig. 3: 10, 15.
Pl. 13: 10-13	Madjidzadeh 2010b, Pl. 80: 9, 17 & Pl. 81: 1, 2, 3, 8, 10, 12, 13; Malek Shahmirzadi 1977, fig. 149: 1, 2, 3; Fahimi 2003, Pl. 4: 1; Stronach, <i>et al.</i> , 1978, fig. 8: 3, 10, 11, 12; Young 1969, p. 121: 12; Goff 1970, fig. 7: 7; Muscarella 1973, fig. 16: 1, 2, 3; Shishegar 2005, fig. 96: 114, 119, 123, 124.
Pl. 13: 14-19	Madjidzadeh 2010b, Pl. 85: 4, 23 & Pl. 87: 10; Fahimi 2003, Pl. 5: 6 & Pl. 15: 14; Young 1969, p. 121: 13; Mollazadeh 2008, Pl. 10: 17, 19; Shishegar 2005, fig. 95: 94.
Pl. 14: 1-4	Madjidzadeh 2010b, Pl. 76: 7, 9, 13 & Pl. 78: 14, 15, 17 & Pl. 89: 12; Fahimi 2003, Pl. 12: 16 & Pl.15: 1-4; Goff 1968, fig. 10: 22; Mollazadeh 2008, Pl. 12: 3, 4, 6; Muscarella 1973, fig. 20: 4; Shishegar 2005, fig. 96: 117.
Pl. 14: 5-8	Madjidzadeh 2010b, Pl. 76: 5, 12 & Pl. 78: 8, 9, 13 & Pl. 89: 1, 4, 7 & Pl. 91: 6; Stronach, <i>et al.</i> , 1978, fig. 9: 17, 18, 19; Young 1969, p. 119: 6, 7; Mollazadeh 2008, Pl. 7: 4 & Pl. 10: 6; Muscarella 1973, fig. 20: 1, 2, 5, 6, 10; Shishegar 2005, fig. 94: 75 & fig. 95: 87.
Pl. 14: 9-15	Madjidzadeh 2010b, Pl. 79: 3, 4, 7 & Pl. 80: 8 & Pl. 86: 17 & Pl. 94: 1-5; Fahimi 2003, Pl.16: 7; Stronach, <i>et al.</i> , 1978, fig. 9: 11; Muscarella 1973, fig. 20: 9; Shishegar 2005, fig. 94: 73; Young 1965, fig. 1: 8 & fig. 4: 3.

Catalogue of Pottery parallels (see Plates 10-14)

Conclusion

Lots of questions can be posed about the stone structure at Zar Bolagh. What was its function? What was the reason for filling the inside of the building and for its subsequent complete covering? What made it necessary? It appears the structure is not a palace or a manor house at all, despite the fact that the local people refer to the building as “Qal’e Zar Bolagh” (Zar Bolagh castle). Although the structure is perched at the summit of a mound that overlooks the surrounding area, the plan and structure are not at all like that of a fortress. Even were we to accept that assumption, there are no logical or justifiable reasons for filling and covering a fortress in the way that is seen at Zar Bolagh. In addition, it has been called a sanctuary and it has been suggested that it served a religious function (Kaboli 1999; Malekzadeh 2003). This possibility is appealing, and according to the archaeological and architectural data it can be suggested that the building at Zar Bolagh could presumably have served as a sanctuary, much like the Nush-i Jan temple.

If this is the case, then it may provide logical answers to our questions about the nature of the site and reason(s) for filling and covering the stone structure. It may be related to the religious conversion in the Median or early Achaemenid periods, as Ghirshman has suggested as the reason for the abandonment and filling of the central temple of Nush-i Jan (Ghirshman 1976). Also other scholars raised this issue (Curtis 2005: 241). However, because of the very little data available, caution must be taken. Further excavation and studies are required to either confirm or reject such hypotheses.

Unfortunately, with the present state of our knowledge of the culture and religion of Iron Age III in Iranian central plateau, we are not able to determine the function of the Zar Bolagh structure with certainty. However, based on classic written sources (e.g. Geography of Strabo) and Bisutun inscription, it is safe to say that the central plateau of Iran as far eastward as the Caspian Gates with its famous capital, ancient Ray was a main part of Median territory and limited to the east by the vast desert of Dasht-e Kavir, where Zar Bolagh site is located on its western borders. One can suggest that the inhabitants of Zar Bolagh were a group of “the Medes who live near the salt desert”, or “the mighty Medes of the east”, as described in the Neo-Assyrian sources.

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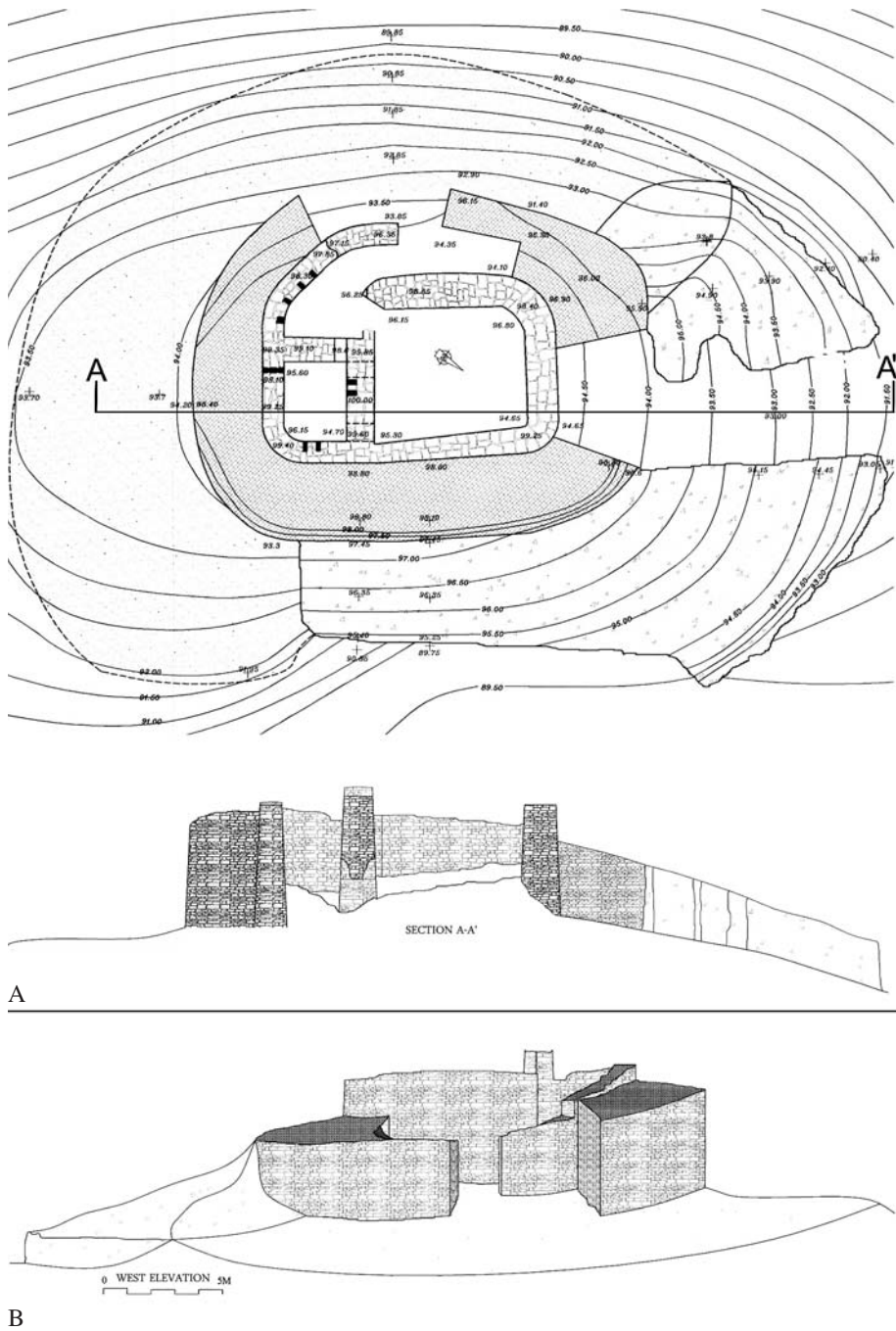
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Pl. 1. A: East-West section of the stone structure showing attached walls,
B: Stone structure and two layers attached to the original walls.



A



B

Pl. 2. A: Zar Bolagh site from the east and its stone structure,
B: Stone structure at Zar Bolagh from the north.



Pl. 3. A: The west cut showing original wall and two attached layers,
B: The stone structure and its attached walls (from the northeast).



Pl. 4. A: The entrance to the structure, B: The beam-holes in the east wall of smaller room, C: The entrance of smaller room.



A



B

Pl. 5. A: The two layers attached to the structure, the stone wall (first layer) and mud brick wall (second layer), B: The original wall (right) and first attached wall (middle).



A



B

Pl. 6. A: The mud brick wall exposed in test trench 1,
B: The mud brick wall in test trench 5.



Pl 7. A: General view of Zar Bolagh Cemetery, B: The burial found in test trench 7.



Pl. 8. A: Grave No. 1 in Trench C1, B: Bronze bracelet with snake-shaped ends found in grave No. 2, Trench C1, C: Grave structure and stone slab of grave No. 2 in Trench C1, D: Grave No. 2 in Trench C1.

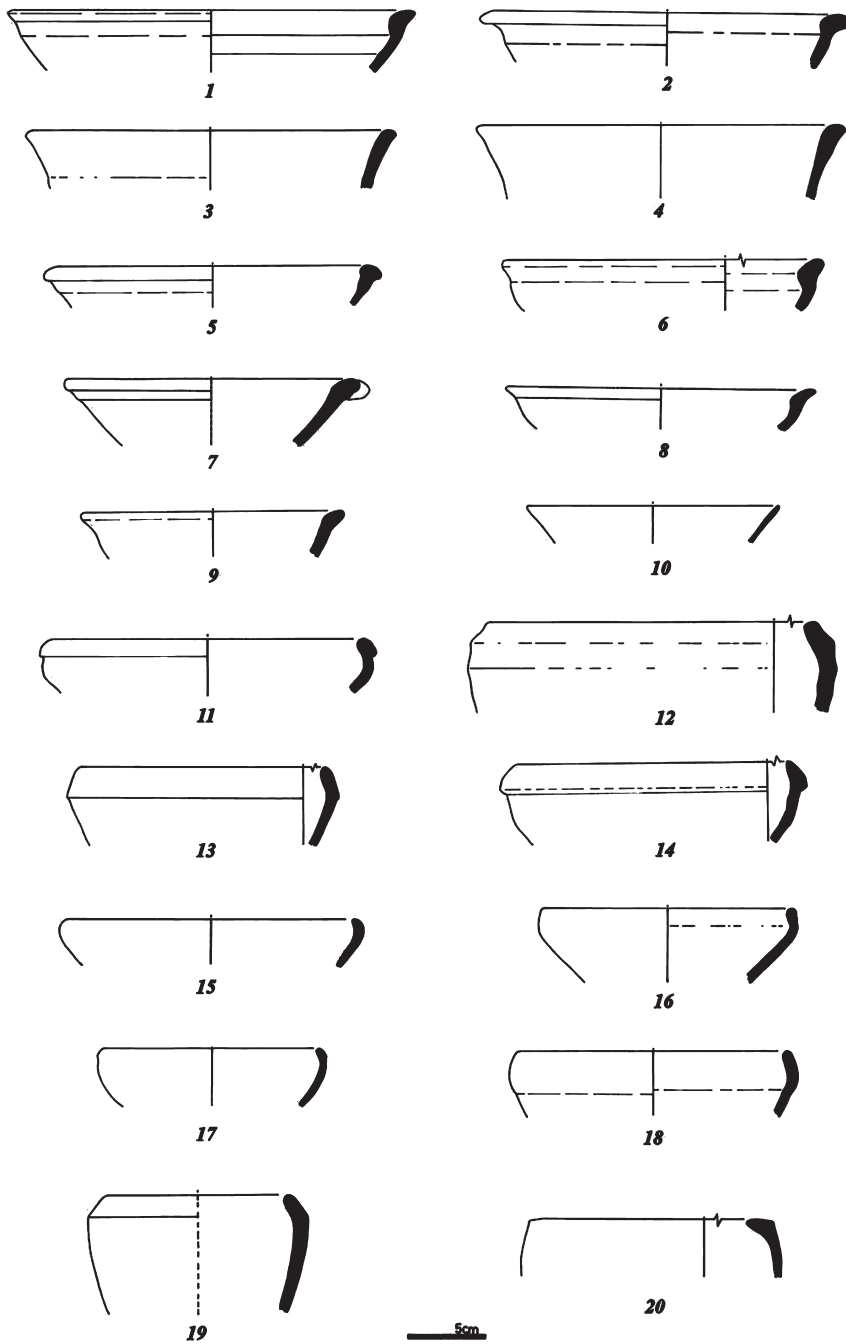


A

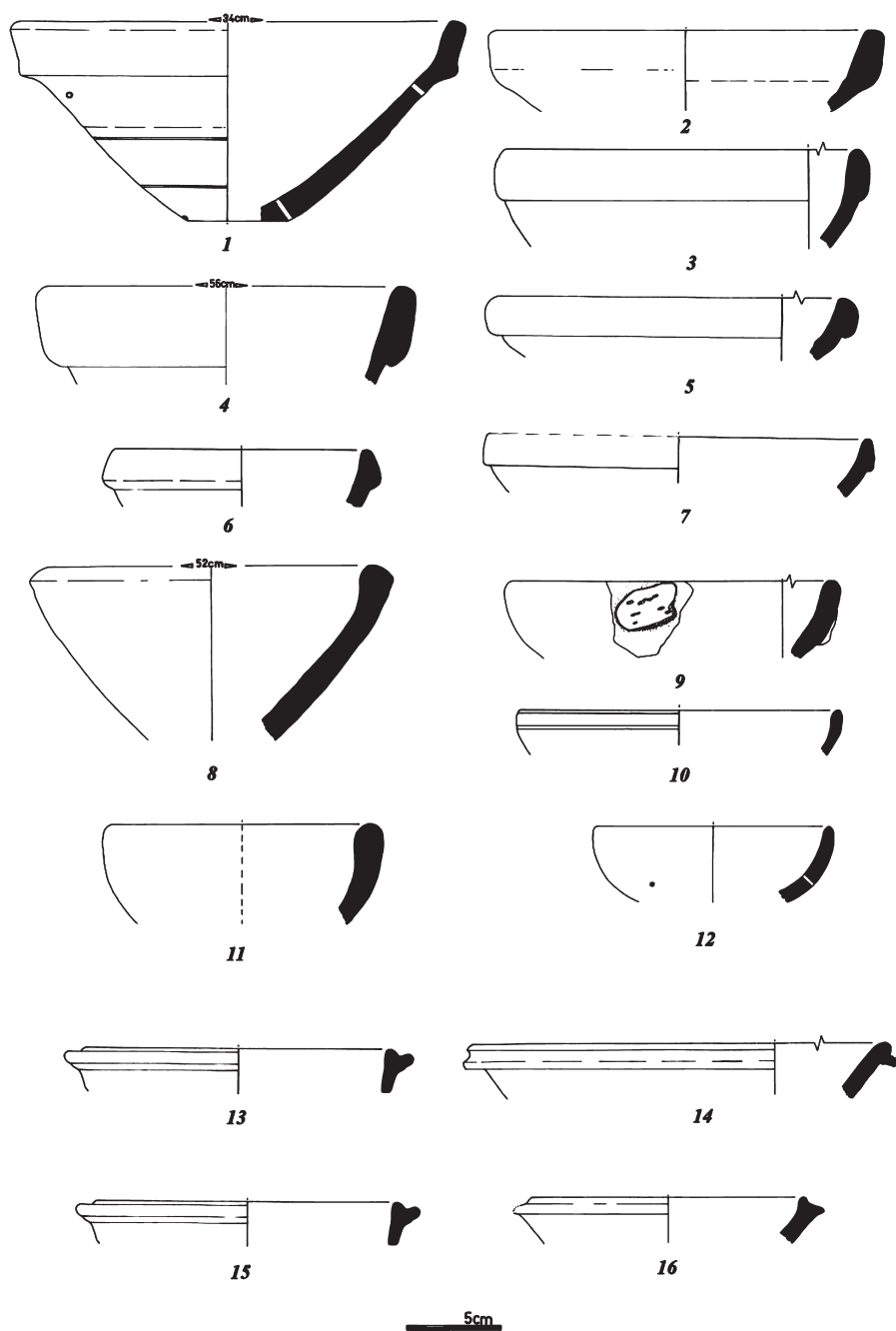


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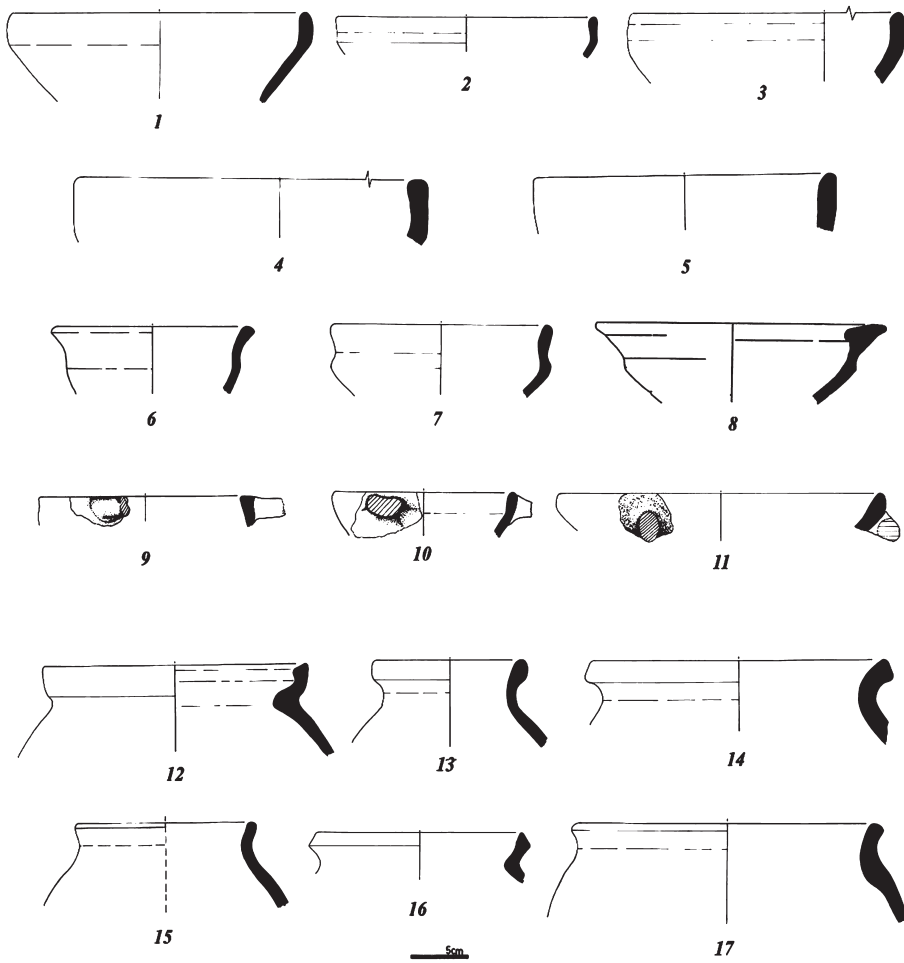
Pl. 9. A: The bedrock in which graves were dug out; the grave in Trench C2,
B: The grave in Trench C3 and The Parthian bronze coin.



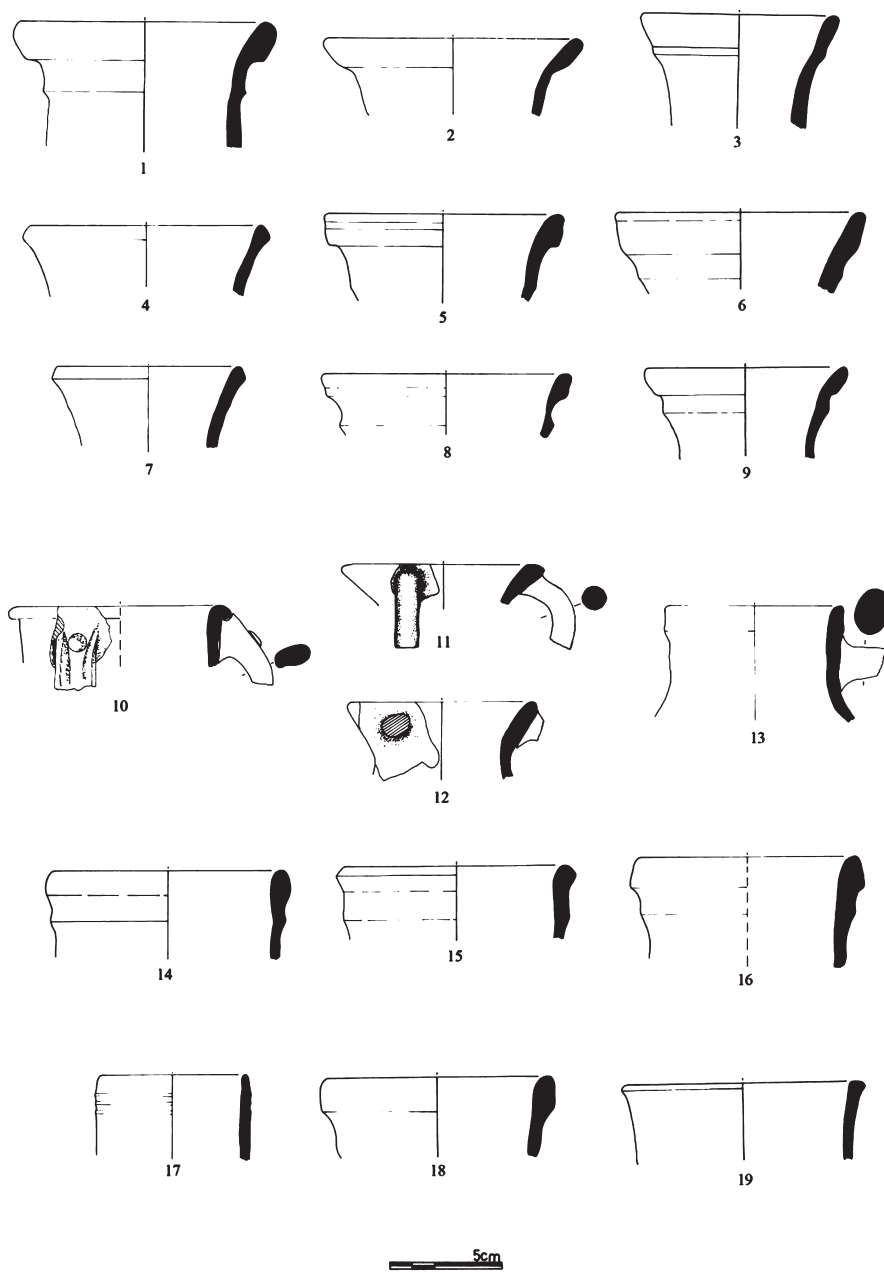
Pl. 10. Zar Bolagh bowls.



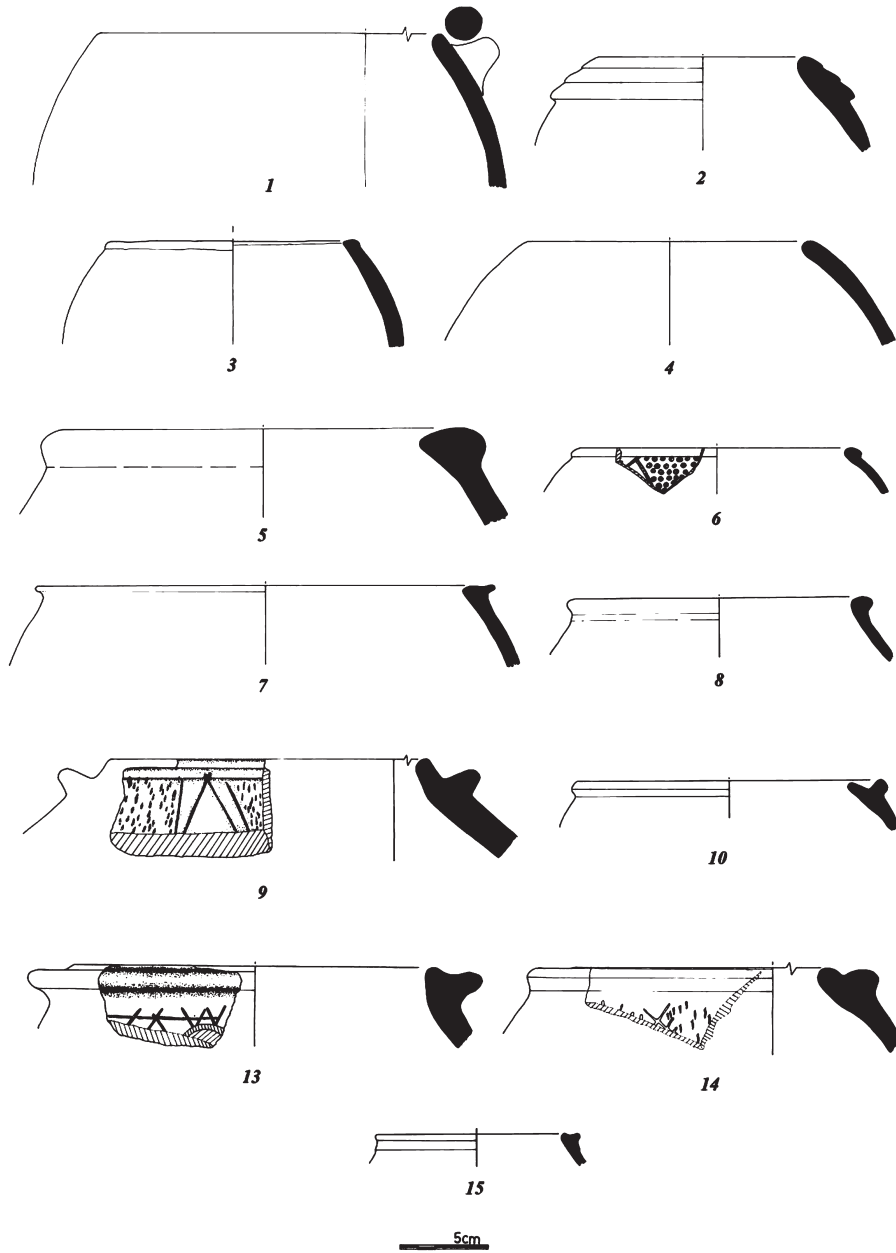
Pl. 11. Zar Bolagh bowls.



Pl. 12. Zar Bolagh bowls (1-11) & jars (12-17).



Pl. 13. Zar Bolagh jars.



Pl. 14. Zar Bolagh cooking pots.

**A TRANSCAUCASIAN BRONZE BELT HELD
IN THE MUSÉE D'ARCHÉOLOGIE NATIONALE,
SAINT-GERMAIN-EN-LAYE¹**

BY

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Abstract: The sizeable inventory of so-called "Transcaucasian Bronze Belts" was further enriched by a recent purchase of a specimen from a private collection by the Musée d'Archéologie nationale of Saint-Germain-en-Laye². Although we lack reliable information regarding its provenance, its unusual mode of decoration adds something to our knowledge of this particular class of items, widespread among the Iron Age cultures of the Transcaucasia.

Keywords: Bronze belt, Transcaucasia, Iron Age, Animal style.

Introduction

Transcaucasian bronze belts have been known to the academic community since the last decades of the 19th century. The first was found in a grave by the German engineer F. Bayern in Samtavro (Bayern 1885: 32-33; Piotrovskij 1949: 5), near the old Georgian capital of Mtskheta; this discovery marked also the beginning of archaeological research in Transcaucasia. Soon afterwards, other belts were brought to light by the famous French archaeologist J. de Morgan in the area of Alaverdi (Lori province, north Armenia) in the cemeteries of Mouçi Yeri, Akhtala and Sadachlo (de Morgan 1889: 114-116; Castelluccia in print), by E. Chantre in the necropolis of Koban (Chantre 1882), 35 km south of Vladikavkaz,

¹ I am most grateful to Dr. Patrick Perin, director of the Musée d'Archéologie nationale, Saint-Germain-en-Laye, and to Christine Lorre, curator of the Department of Comparative Archaeology in the same museum, for the permission they kindly granted me to see and study the belts stored there and for the generous and kindly assistance always shown during my visits to the Museum. Also I would like to thank Chiho Oki, who undertook the task of drawing the belt. The photographs were taken by the author.

² Inventory no. 89494.

and by G.D. Filimonov in Stephan Tsminda³ (Chantre 1886: 131-146, Pl. LV; Tallgren 1930), near Mount Kazbek.

Subsequently other items were recovered by German expeditions led by W. Belck (Belck 1893; Nagel & Strommenger 1985) and E. Rösler (Rösler 1896: 83) in West Azerbaijan, while an isolated example was found in a grave in Podgorcy (Uvarova 1900, Pl. XIII; Ivanovskaja 1927), near Kiev.

The considerable number of belts found in these early excavations stimulated the first studies of this class of material. In the publication of his work in Armenia, de Morgan attempted an initial classification, dividing them into three main categories: plain belts, those with geometrical designs and those with a figured theme. The same framework was later adopted by R. Virchow (Virchow 1895: 15-16).

With the advent of the Soviet Union, the lands around the Caucasus range became inaccessible to Western expeditions, although intense research on the part of Russian, Armenian, Georgian and Azeri scholars continued. In later years numerous examples were found throughout Transcaucasia⁴, but the study of these was mostly limited to Soviet scholars and only a few works were published in Western languages (Esayan 1984; Chidašeli 1986). In the meantime, however, some items were acquired by Western (André-Leicknam 1979; Mohen 1979; Overlaet 1983; Culican & Zimmer 1987), Turkish (Taşyürek 1977; Çevik 1996-97) and Japanese (Yukishima 1984; Castelluccia 2011) museums, thus bringing them also to the attention of the Western academic community.

³ Chantre also published some belts as coming from an unspecified necropolis near the city of Gori (Chantre 1886: 147-154, Pl. LIX). In reality, as Tallgren has pointed out (Tallgren 1930: 115), those fragments, part of the Komarov collection, were found in Koban or Stephan Tsminda and then illicitly acquired from local villagers.

⁴ Over 300 metal belts (Castelluccia 2013), mostly fragmentary, have been recovered in the lands of present day Armenia, Azerbaijan and Georgia. Only few items known to the author come from the north side: the belt found near Kiev and those from the area of Koban cited above, few fragments found in the southern part of both Ingušetija and Čečnja (Kozenkova 1982, Pls. XXIX-XXX) and one found recently in the vicinity of Kislodovsk (Dudarev & Fomenko 2008: 7-15). Clear Transcaucasian belts have not yet been found during controlled excavations in Turkey or Iran. Only a small fragment with spiral decoration, perhaps part of a belt, was found inside a building in Giyimli (Erzen 1974, figs. 36, 37) while the geometric belts found in Chagoula Dérré (de Morgan 1905: 284, figs. 466, 467), Djönü (de Morgan 1896: 104, fig. 107) and Hasanlu (Muscarella 1988: 47-49) share only some features with Transcaucasian items.

Recently two Russian scholars returned to the subject, publishing perhaps the most complete catalogue presently available of these belts (Pogrebova & Raevskij 1997).

Despite the attention of numerous scholars, many aspects of the belts remain unclear, such as the meaning of their decoration, their chronology and the social context in which they were used. This article aims at enriching our knowledge of this class of item, which has been insufficiently analyzed, especially in the Western literature.

The Musée d'Archéologie nationale belt is well preserved and complete, with just a few scattered traces of corrosion and a surface patina. It is c. 65 cm long and 7 cm wide and is complete. A small break is present in the middle of the belt; no other parts are broken or damaged (fig. 1).

The ends are slightly rounded, with three vertically aligned holes at each end. The presence of such holes suggests that the belt was fastened by leather thongs passing through them. No other holes are present, which might mean that the belt was not attached to any sort of backing (e.g. in leather).

The belt consists of a continuous curved sheet of bronze decorated with punched and incised dots and lines.

There are only two decorative elements: a single line of connected spirals which runs along the upper and lower borders, consisting simply of a single continuous engraved line, and a figured pattern which occupies the whole surface of the belt, composed of six animals. No filling motifs are used to occupy the spaces between the animals.

Twin techniques are employed for the decoration: incised lines for the spiral, the outline and the musculature of the animals, and punched dots to fill the empty space in the interiors of five animals.

Continuous engraved lines run along the inner sides of the spiral series, separating them from the figured field in the centre. Another vertical line is preserved at the right end, closing the field before the attachment holes.

The entire central field is occupied by a simple decorative pattern: six running animal figures face rightwards, of which five are virtually identical, in the same posture and rendered in the same manner.

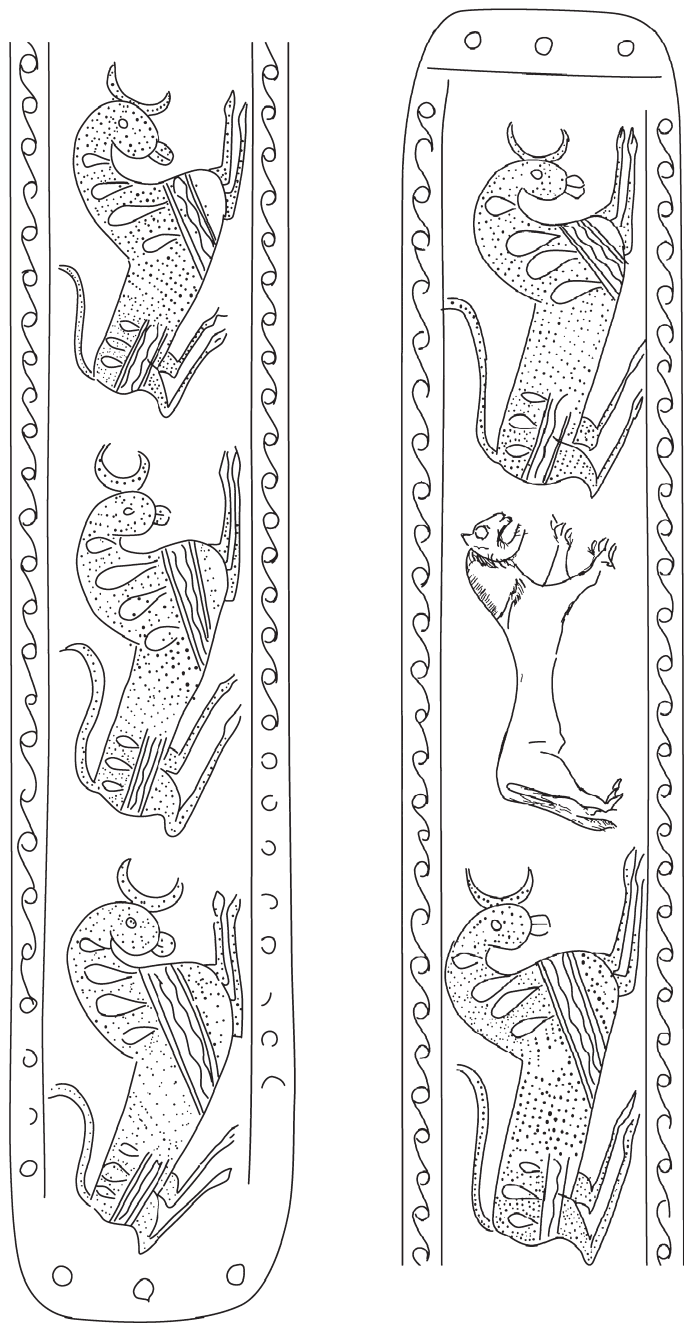


Fig. 1. Drawing of the belt.



Fig. 2. Detail of the left end.



Fig. 3. Detail of the "lion".



Fig. 4. Detail of a “wild bull”.



Fig. 5. Detail of a “wild bull”.

Animal 1: The Wild Bull (?)

One of the most characteristic features of the ornamentation of Transcaucasian belts is the highly stylized form of the figures depicted, a mode of decoration that is clearly of local origin and does not show any influence of the cultures of the Near East. This manner of representation leads, in some case, to the total transformation of the animal or human figures by the stretching or rounding-off of body outlines.

This style appears also in our belt, albeit in less extreme form than in some other items. Because of the stylization, it is difficult to determine precisely with which kind of animal we are dealing. Their thick bodies and semicircular horns and hoofs suggest that these animals belong to the *Bovinae* family; they are generally considered to be bulls.

Representations of bulls are widespread in Near Eastern iconography. Limiting our analysis to the Iron Age cultures, numerous examples appear especially in Neo-Assyrian and Persian art but especially in Urartian art where the bulls is generally associated with god Teišeba.

However, I believe that this influence is not present in the case of our belt, nor indeed in the iconography of the Transcaucasian cultures in general. Of the surviving bronze decorated items, most of those bearing some sort of decoration express rather the art of upland dwellers and show

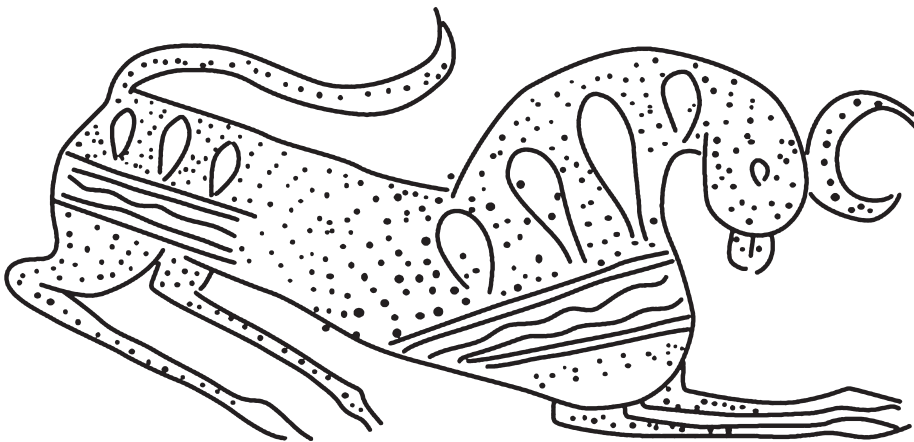


Fig. 6. Drawing of the "wild bull".

animals living in their natural landscape, without any clear connection with a deity. Interpreting our animals as “bulls” may lead to an erroneous assumption regarding the influence of Mesopotamian cultures, which in fact is practically non-existent.

Seen in this light, we may say that this animal surely belongs to the cattle family, but that it might be a wisent, or European Bison, which was present in the fauna of the Caucasus up until the early 20th century (Demi-doff 1898), with a local subspecies called *Bison bonasus caucasicus* (Pucek 2002: 13-23).

All five animals are rendered in the same style, with only minor variations in leg and head position. They are in a running posture, with the hind legs below the belly and the forelegs stretched out in front. The long tail is depicted raised over the body. The eye is represented merely by a rough circle. A semicircular line stretches out from the mouth, representing the tongue or a protuberance of the muzzle. The beasts all run towards the right. Within the body what seem to be muscles are depicted by upside-down drop-shaped lines. Other series of slightly oblique lines mark the division between the chest and hindquarters and the main body. The rest of the space is filled with numerous small punched dots.

Horned animals are often portrayed on the so-called Transcaucasian bronze belts; although their style differs in many ways they present some common features. They are always shown in profile, but with the horns in front. A thick body, hoofs and circular eyes are always present (figs. 7, 8). Some detail can also be seen. On a belt found in a kurgan in Chodžali (fig. 9) both eyes are shown, while on another from the huge cemetery of Samtavro (fig. 10) the “wisent” has a small pointed tail and a protuberance under the belly, perhaps the male member. The same detail appears on a belt from Sanain (fig. 12). In other examples, like those depicted on belts from Lorut (fig. 7) and Sanain, we might reach different conclusion: the slimmer body and longer neck suggest to identify these animals as some sort of wild goat.

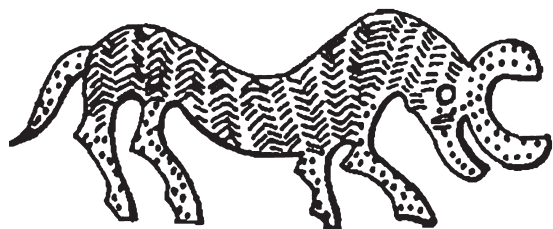


Fig. 7. Chačbulak (after Kesamanly 1966, fig. 4).

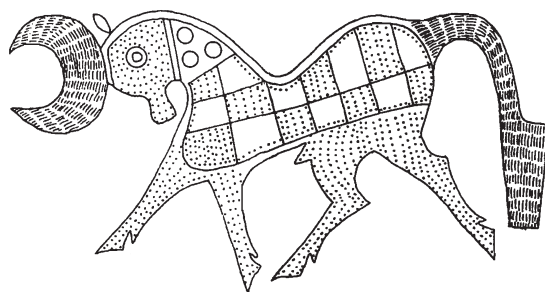


Fig. 8. Trialeti (after Kuftin 1941, Pl. XXV).

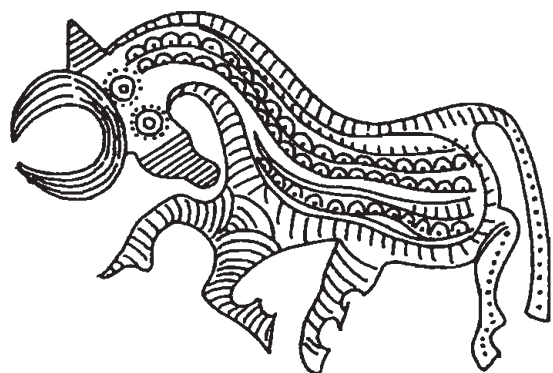


Fig. 9. Chodžali (after Virchow 1895, Pl. IV, n. 18).

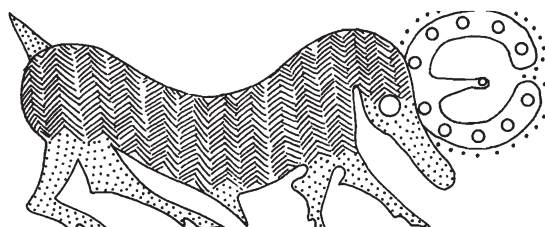


Fig. 10. Samtavro (after Urušadze 1970, fig.1).

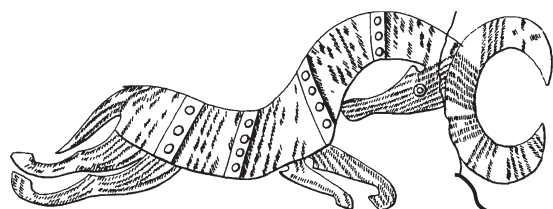


Fig. 11. Lorut
(after Esayan & Avetjan 1981, fig. 1).



Fig. 12. Sanain (after Esayan 1984, Pl. XVI, n.50)

Animal 2: The Lion (?)

This figure is the most original with respect to its design. As we have seen above, the animals of the first group are stylized. This, on the contrary, is remarkable for its naturalism, in which realistic body proportions are maintained.

The animal depicted is surely a felid. However, it is impossible (and maybe unnecessary) to determine the exact identity of the animal. Persian Leopards, Caspian Tigers and Asiatic Lions were to be found in the Caucasus zone, some of them until the 19th century, so our animal may well be one of these.

This beast is slightly smaller than the wild bulls. The mane is lightly depicted by a series of small incised lines along the neck and back. There is a small pointed ear, a round eye and an open mouth. The teeth are not shown.

The tail hangs downwards parallel to the hindquarters of the animal. Small incised lines indicate the hairiness of the coat. The front legs are stretched out, as if in a running position, with the left leg slightly lifted. The feet bear claws.

Clear representations of felids are rarely recognizable on Transcaucasian belts. Due to the high stylized form of the animals, in many cases the

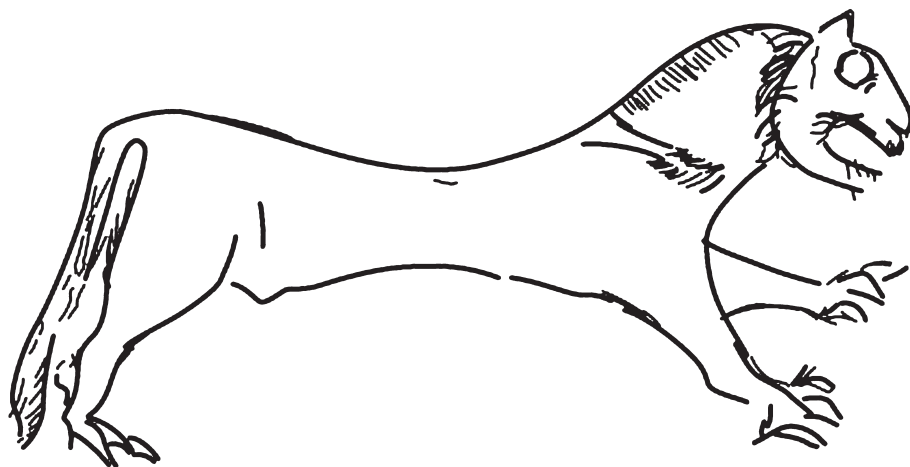


Fig. 13. Drawing of the "lion"

interpretation is more complicate and they may be considered instead as wolves as well. The few clear felids however present some common features, like the particular emphasis on the open jaws, in which teeth are sometimes indicated, a stocky body and small ears (figs. 14, 15).

On a belt found in Astchi blur (fig. 16) the felid is characterized by a long tail with his end slightly rolled up. Claws are rendered by thin lines but teeth are absent.

The “predator” depicted on a belt from Širakavan (fig. 17), on the contrary, with his pointed long ears and with the muzzle stretched out seems to be more a wolf than a lion. “Wolfs” seem to be more often depicted than felids and they usually present the same features of the animal just mentioned. Similar animals occur on belts from Kazakh (Sadykhzade 1971, Pl. XIX), Treli (Chidašeli 1982, Pl. XV), Astchi blur (Esayan 1967, 223, fig. 2; Esayan 1984, Pl. XV, n. 49), Nor Bajazet (Esayan 1984, Pl. XXI, n. 60), Odzun (Esayan & Avetjan 1981, fig. 2), Širak (Esayan 1984, Pl. XX, n. 61).

On the basis of comparison with other examples of Caucasian art, it is clear that this lion does not belong to common Caucasian style. More interesting parallels can be found in contemporary art of Urartu, not greatly distant, in which lions are often depicted on bronze items, especially bronze belts, shields and quivers, usually in the well-known Assyrian style. As the German scholar U. Seidl has shown (Seidl 2006: 123, fig. 94), in most cases the lions depicted in Urartian art have the tail above the back. Only in the time of Rusa II (first half of VII century B.C.) were lions shown with the tail pointing downwards as in our figure, for example on shields found in the Urartian citadel of Ayanis (Çilingiroğlu & Derin 2001, fig. 23). However, it may be a little risky to propose a date for our belt on the basis of this parallel alone.

The Paris belt is surely Caucasian in style, although it contains an element (the lion) which clearly and strongly distinguishes it from the other known examples, almost as if two different craftsmen had undertaken the decoration of the belt. Moreover, looking in detail the engraved lines of the “lion” and the “wild bulls”, it is also possible to note that they are quite different, perhaps done by using different tools.

We cannot even exclude the hypothesis that the belt has been re-employed and one of the two animals has been added in a second moment.

The chronology of this belt, as indeed that of the Transcaucasian belts as a group, is still an unsolved problem. Despite the hundreds of items that

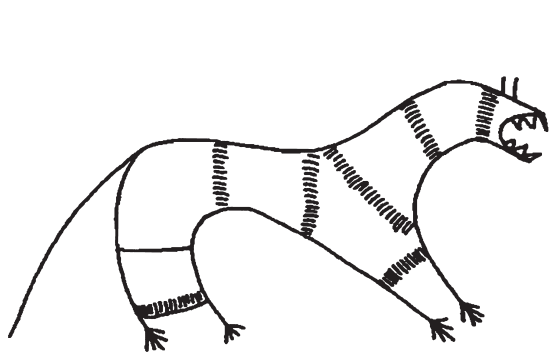


Fig. 14. Samtavro (after Chidašeli 1986, Pl. 3, n. 6).

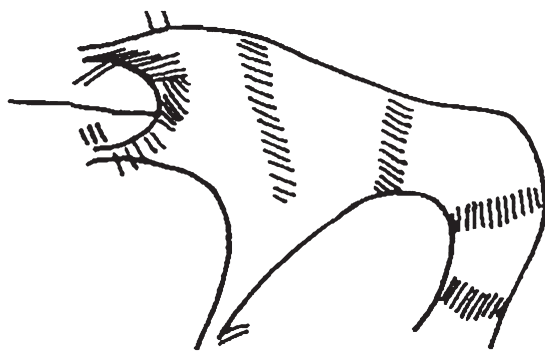
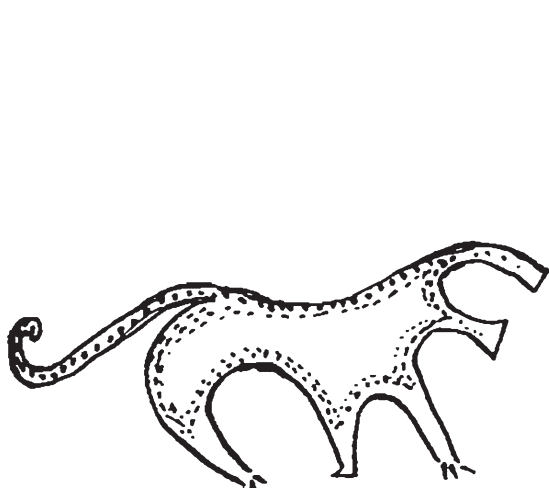


Fig. 15. Bdžni (after Esayan 1984, Pl. XV, n. 52).

Fig. 16. Astchi blur
(after Esayan 1984, Pl. XV, n. 49).Fig. 17. Širakavan
(after Torosjan et al. 2002, fig. 13).

have been found in graves, with well-documented contexts, most of the previous studies have focused on an analysis of the decoration and tried to reach a dating on the grounds of artistic style, without giving sufficient importance neither to the archaeological contexts in which the belts were found, nor to the other objects associated with them. Lacking any reliable chronology for most of the belts, we cannot here propose a reliable dating, but merely follow the general assumption that they mostly date from the 10th to 8th centuries BC.

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**‘O YOUNG MAN ...
MAKE KNOWN OF WHAT KIND YOU ARE’:
WARFARE, HISTORY, AND ELITE IDEOLOGY
OF THE ACHAEMENID PERSIAN EMPIRE***

BY

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Abstract: The political history of the Achaemenid Empire (ca. 550-330 B.C.) has been heavily informed by the contemporaneous Greek sources and their later interpretations. This article focuses on the central question of whether the Persians undertook any documentation of specific historical events that survive to the present day. It suggests that a class of warfare representations on seals and other elite objects from the Achaemenid imperial realm reflect a unique Persian perspective on the empire’s past, which could potentially serve as evidence for Achaemenid military/imperial history (including the history of the ideological component of that history).

After providing an overview of warfare representations in Achaemenid art and the theoretical underpinnings for using warfare scenes as historical sources, the discussion touches upon crucial art historical issues and demonstrates that Central Asia may have presented the Achaemenid kings with problems different from but no less challenging than those from Greece and other part of the Empire such as Egypt.

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This article is a development of my initial study of warfare images on seals in my dissertation, entitled “Central Asia in the Context of the Achaemenid Persian Empire (6th to 4th Centuries B.C.).” The material in this article overlaps partially with a short paper published in the proceeding of the Achaemenid Conference held in the British Museum (London) in 2005 (Wu 2010). This article, in comparison to the BM publication, presents a much larger scope of discussion and offers a more systematic approach to the material; it also strives to build a theoretical framework and tackle the big question of the relationship of art, history, and ideology of the Achaemenid Empire.

The article also highlights the possibility that there was a change of image policies in the middle of Darius I's reign. Corresponding to such change were the rise and growing popularity of warfare images in art. These images could have reflected the new elite ideology and its corresponding social structure. Presenting collectively a social memory of the Achaemenid society, the warfare images should rightfully be considered as an important source of information for studying both political history and elite ideology of the Achaemenid Empire.

Key Words: Achaemenid History, Warfare, Iran, Central Asia, Greece, Egypt, Art and Ideology

“O young man, very much make known of what kind you are, of what kind (are) your skills, of what kind (is) your conduct”

—DNb 50–55 [§3a], Schmitt 2000: 41.

Questions and Goals

Literary and archaeological records appear to thwart our attempts to develop a fair historical narrative for Achaemenid Persian Empire—the earliest and theretofore largest world empire (Kuhrt 2001: 93),¹ whose boundaries at its peak stretched from India in the east to Libya in the west, and from the Eurasian steppe in the north to Egypt in the south (Pl. 1). Despite the legendary wealth and breadth of the Achaemenid Empire at its peak (ca. 550–330 B.C.), very few Persian documentary texts have survived to describe the complex relations of the empire or the mechanisms of its power. Nor are there even narratives on the accomplishments of the Great King, except for the Behistun Inscriptions carved on the rock surface at Behistun by King Darius I (r. 522–486 B.C.) and the various versions of

¹ In this article, the term “Achaemenid(s)” denotes an overarching ideologically charged notion of the bureaucratic structure of the empire and the people who had different ethnic origins but were ideologically attached to this empire, whereas the term “Persian” refers to the people dwelling in the territory in southwestern Iran and the dominating ethnic group of the Achaemenid Empire, that is, ethnic Persians. Although the term “Achaemenid” is surely connected with the eponymous ancestor of the Persian kings, a distinction between “Achaemenid” and “Persian” is made to emphasize that the empire is a larger entity whose components are much more than the Persian land/people and that its members, despite their ethnic origins, all had a collective identity, i.e., the “Achaemenids.”

them from elsewhere in the empire (Pl. 2. a, b).² The only extant evidence is archaeological and art historical: seals, funerary monuments, personal decorations, and so on. Aside from the vigorous debates about whether Persian historical accounts once existed, interested historians are faced with a series of practical questions, such as: Is it possible to develop any historical narrative for a people without a recorded narrative history? To what extent, if at all, were the Persians aware of their history? And, ultimately, are attempts to write histories of empires as renowned as the Achaemenids' hopelessly doomed without the assistance of literary records? If not, what might such a history, particularly a political history, look like?

This essay draws attention to visual images of warfare from Achaemenid art and the circumstances of their production to challenge the notion that the development of a Persian historiography necessarily relies on the interpretation of written narratives. The article has two related goals. The first is to offer a short survey of the artistic and archaeological evidence, along with a brief sketch of the methodological problems involved in the study of Achaemenid history and the potential advantages and challenges of using the warfare images on seals and seal impressions toward its study. The second is to assess and interpret the history and imperial relations of the Achaemenid Empire, specifically those concerning the conflictive interactions between the empire and opposing powers—both inside and outside of the imperial boundaries. Ultimately I argue that careful examination of diverse media, including warfare scenes presented in all genres of Achaemenid art, can support novel hypotheses about the dynamics and mechanics of this empire at its height. Review of specific artistic motifs can revitalize

² For editions and translations of the Behistun inscriptions, see Kent 1953: 116–134 and Schmitt 1991 for the Old Persian text, Weissbach 1911, Cameron 1960, Grillot-Susini, Herrenschmidt and Malbran-Labat 1993 for the Elamite version, and von Voigtlander 1978, Malbran-Labat 1994 for the Babylonian version. A late 5th-century-B.C. Aramaic version of the DB inscription on papyrus, which was perhaps a copy of an Aramaic translation of the Akkadian version of the DB, was found in the Jewish military colony in Elephantine/Jeb in Egypt (Cowley 1923: 248–71; Greenfield and Porten 1982: 3; Porten and Yardeni 1993: 59–71 (C2.1)). The Aramaic text was perhaps written by a student or a master for scribe-training purposes (Briant 2002: 123). Pierre Briant (2002: 123) also mentions a tablet from Susa, which has traces that might have been another copy of the DB text, but the inference is highly uncertain. It has also been suggested that the original DB text had been translated into other languages, such as Greek. But so far no firm evidence supports this supposition (cf. Schmitt 1990: 302).

the seemingly futile quest to develop a narrative history that reflects a Persian perspective. Mining of art historical and archaeological evidence also can reveal important information on Achaemenid elite ideology.

The following discussion comprises four sections: the first one tackles the general methodological problems and limitations of using the battle and victory scenes on seals to study Achaemenid history as well as an overview and classification of the material. The second draws on this data to address the methodological problems pertinent to the use of warfare scenes as historical sources. It touches upon such crucial art historical issues as the interrelatedness of imagery across media and the transformation of imagery over time and space. The third section offers a systematic assessment of the various groups of warfare images based upon the ethnic identity of the participants, highlighting heretofore-neglected aspects of the history and ideology of the Achaemenid Empire. At the end of the paper, in the fourth and final section, I present some conclusions about and potential directions for future scholarship on the rise of the Persian elite class and its ideology.

Section I. Problems, Potentials, and Overview of Warfare Representations

Problems

One recurring difficulty for Achaemenid history is the fraught issue of whether the Persians, like their ancient Near Eastern predecessors (particularly the Assyrians and Babylonians from whom the Persians had drawn much of their state structure and imperial apparatus) actually kept any narrative accounts (annals or chronicles) to document their history. Another perplexing topic, intimately related to the first one, is identifying the Persian notion of violence and warfare, for while they used military means to acquire and defend their territory, the Persians appear to have eschewed depicting warfare except for one official representation—the Behistun Monument (and its subsets), which contains a set of trilingual cuneiform inscriptions (in Babylonian, Elamite, and Old Persian) and a relief tableau commemorate the military successes of Darius I over the nine “Liar-Kings” and a nomadic Saka leader called Skunkha right after his accession to the throne during 522/21 and 519/18 B.C. (Pl. 2. a). The Behistun Inscriptions, the only extant historical documentation recorded by the Persians, capture

only a small fragment of the political history of the Achaemenid Empire. While the information the inscriptions contain corresponds partially with that provided by Herodotus in his *Histories*, no other Achaemenid historical documents have been found.³

Scholars have speculated extensively, partly on the basis of the Behistun Monument and its inscriptions, about lost strands of narrative historical traditions that pervaded the Achaemenid Empire. Some argue that the Persians had a strong oral tradition of formulating, transmitting, and preserving their history and thus did not need any written narratives;⁴ others, by contrast, insist that such narrative accounts did exist but have not been preserved because they were written (in Persian or Aramaic) on such perishable materials as leather or papyrus.⁵ These arguments remain hitherto unresolved.

The lack of historical narrative in Persian textual sources is equally reflected in Achaemenid monumental art. The relief tableau at Behistun depicts Darius stepping with one leg victoriously upon his Median contender Gaumāta while facing a file of nine defeated enemies chained together by a rope around their necks and wrists, and saluting a figure emerging from a winged symbol.⁶ The relief is considered as “unique for

³ Five out of seventy paragraphs of the Behistun inscriptions (by the Old Persian count) correspond to Herodotus' accounts. These include the death of Cambyses, the accession and assassination of Bardiya/Smerdis, the revolt of Gaumāta the Magian, the list of Darius's six fellow conspirators (compare Herodotus III: 61–68 and DB I: 10–14; Herodotus III: 70.1–2 and DB IV: 80–86). Some details, such as the claim that Smerdis was born of the same father and mother as Cambyses, are extremely similar (compare Herodotus III: 30.1 and DB I: 29–35, cf. Schmitt 1990).

⁴ Sancisi-Weerdenburg, who represents one strand of scholarship, rejects the idea that the Persians kept a written narrative history. She grounds her study on the structure of Achaemenid royal inscriptions and hypothesizes that the Persian royal inscriptions, with their lack of specific narrative details, grew out of the “conflict between the old existing oral tradition and the new royal habit of eternalizing memories in writing” (Sancisi-Weerdenburg 1999: 109).

⁵ Arnaldo Momigliano (1990: 6–12) argues on the basis of information provided by the Hebrew Bible and Greek authors that the Persians must have kept a narrative history in the form of royal chronicles. He notes that the Achaemenids were said to have kept leather documents in their royal archives (cf. Ctesias of Cnidos via Diodorus Siculus 1933: II: 32.4; Momigliano 1990: 6) and further asserts that Persian historiography had even influenced the development of Greek and Hebrew writing (1990: 8–12).

⁶ There has been immense, heated, and long-lasting debate on the identification of the winged figure. The identification ranges from Ahura Mazda (the Iranian creator god), to *khvarnah/farr* (divine aura of the king), *fravaši* (spirit/daimon/double of the king) according to Persian conceptions, or the Elamite *kitin/kiten*. Margaret Root (2012: 53–54) revisited the

being an explicit visual presentation either of warfare generically, or of any specific historical event—military or otherwise” (Root 2012: 30, also Rollinger 2006). The representation, however, lacks a narrative quality and can be regarded as merely a “textual illumination” (Root 1979: 186–187). The picture remains equally ambiguous in works discovered in other imperial centers of Persian power. At the Achaemenid capitals in Pasargadae and Persepolis and the nearby royal burial site in Naqsh-e Rostam, visual representations of an official nature are limited almost exclusively to iconic representations of the Great King and his subjects, often depicting the latter bringing gifts to or supporting the throne of the king. The peaceful, timeless, and metaphorical manner of the representations makes the scenes and actions, in an extended sense, “ahistoric.”

The seeming lack of historical narratives from the Persian side is countered by vociferous narrative accounts by contemporaneous Greek authors. Numerous Greek literary descriptions of the Persian king and his empire by Herodotus, Ctesias, Xenophon, and others, and the later interpretations of these accounts, therefore, form the core of Achaemenid historiography.⁷ As our understanding of Achaemenid history is still heavily informed by classical texts written by non-Achaemenids, the sources persistently generate arguments over their accuracy, underlying cultural biases, ideologies, political agendas, and perspectives on history, any or all of which might lead to depictions that differ partially—or even entirely—from how the Persians would have viewed themselves. Are we, then, really at the dead end of our quest for Persian history—and, in particular, its political history, which is defined here as the sequence of *past* events that human beings experienced, particularly those events involving *group relations* such as alliances or warfare.

issue in a recent article on the Achaemenid divine kingship and supplied the most up-to-date scholarship on the topic. I thank Root warmly for sharing with me her manuscript of the article.

⁷ This situation has started to change since the end of the 1970, marked by the publication of *The King and Kingship in Achaemenid Art* in 1979 by Margaret C. Root. A serious workshop on Achaemenid history held between 1983 and 1990 and the publication of the papers presented at those workshop sessions contributed tremendously in freeing Persian history from Classical Studies and establishing Achaemenid Studies as an independent field. For issues related to the Persian historiography and Greek sources, see *Achaemenid History*, vols. 1–8, especially vols. 1–2, 5 (ed. Sancisi-Weerdenburg 1987; ed. Sancisi-Weerdenburg and Kuhrt 1987; ed. Sancisi-Weerdenburg and Drijvers 1990).

Potentials: Warfare Images as Hermeneutical Tools

Perhaps the way forward requires a rethinking of both the traditional western notion of history and the types of evidence that we typically use to study history (van der Spek 2008, Wiesehöfer & Krüger 2012). After all, are the traditional Hellenist-centric treatments of history as a series of *written* narratives the only path to understand the political history of the Achaemenid Empire? In addition, is it really true that the Achaemenids were “silent” about their past? Irene Winter and many others, based on the studies of the pictorial narratives depicting historical events on ancient monuments, especially commemorative representations of military events from the ancient Near Eastern contexts, argue repetitively that, like written narratives, visual narratives are just as important in representing and preserving history; they can be parallel to, complementary with, or even independent from verbal narratives.⁸ The parallelism between text and image articulated by Winter, in fact, cannot be more clear in Achaemenid inscriptions and art: the Behistun relief, as Root convincingly argues, serves as the “textual illumination” for the accompanying inscriptions (Root 1979: 186–187); and the reliefs at Persepolis and Naqsh-e Rostam of people of different ethnicity are the counterparts of verbal listings of the king’s subjects and territories. However, visual narratives such as Winter usually focuses on are mostly found on large-scale, official monuments; such works have not been found in the Achaemenid context, except for the Behistun relief and a stele from Babylon, which is a subset produced based on the Behistun relief (Pl. 2. b). But, as I demonstrate below, this does not necessarily mean that the Persians were completely “silent” about their past or rejected pictorial narratives.

⁸ Irene Winter (1981: 2; 1983; 1985: 12; 1989; 2008: 7) and others have repeatedly written about visual imagery as independent information agency in ancient societies. See also Root 1979: 186–187; Marcus 1987; Russell 1991: 29–30, 254. The classical example that demonstrates the independence of visual narrative from text is the depiction of the capture of Lachish, which was perhaps among the most important incident of Sennacherib’s third campaign and was narrated visually in great details in the king’s palace, was not mentioned at all in the annalistic account of the campaign (Russell 1991: 254). In a recent article, Root (2012: 60) articulates again the relations between text and image at Behistun and emphasizes yet again that “for an ancient culture, especially one attempting to forge a vast and heretofore unprecedented multicultural hegemony, visual imagery was at least as powerful a tool as the written word.”

The solution to the apparent problem of evidence, I suggest, is to redefine the scale of the material for examination and reconsider what constitutes meaningful evidence. This solution is to think smaller, instead of bigger, and private, instead of official. An abundance of evidence presents itself, for example, if we extend the category of pictorial narrative to embrace also small-scale artifacts and privately commissioned works from the Achaemenid period—specifically, visual representations of military scenes depicted on seals, personal decorations, and funerary monuments. As I demonstrate in the pages that follow, such warfare images, which present a pictorial version of history according to the winners (i.e., the Persians and their allies) provide a rich pool of evidence for imperial relations (both domestic and foreign), royal and elite ideologies. The seals, as the cultural products of the Achaemenid Empire, should therefore be treated as an important source for reconstructing the political history of the empire and a catalyst for developing new ideas about historiographical methods, elite ideology, and long-standing hermeneutic impasses.

Warfare Representations in Achaemenid Art: Overview and Categorization

Warfare images are among the most common motifs in Achaemenid art. They are found, aside from the rock surface at Behistun, on personal decorations, stone sculptures, painted wood, and especially on seals or impressions of seals throughout the Achaemenid Empire. Despite their significant quantities, warfare scenes on seals of the Achaemenid period have not attracted much scholarly attention until the recent discovery of the military motif on funerary monuments from Anatolia, such as a painted marble sarcophagus from an early fourth-century-B.C. burial near Çan at the Granikos valley in Phrygia (Sevinç et al. 2001; Kaptan 2003; Ma 2008)⁹ and a painted wooden beam in the Archäologische Staatssammlung in Munich that has been clandestinely excavated and dated to an early-fifth-century-B.C. tomb near Tatarlı in Turkey (Summerer 2007a; 2007b: 2, 26; Summerer and von Kienlin 2010: 80–87; my Pl. 3. a, b). In studying these

⁹ The sarcophagus has been dated stylistically by the excavators to early fourth century B.C. based on comparisons between the battle and hunting scenes carved on it and the similar scenes depicted on seals from Persepolis and Anatolia (Sevinç et al. 2001). The study of Deniz Kaptan, based on a comparison of the images on the sarcophagus—especially the landscape features—with those seal images preserved on clay sealings from Daskyleion (Kaptan 2003: 199–200), supports the initial dating of the sarcophagus.

military scenes, scholars have called upon the warfare images on seals and suggested that the images on the sarcophagus and beam must have been inspired by some Persian prototypes (Sevinç et al. 2001; Kaptan 2003; Summerer 2007a: 134; 2007b). Most of these publications, however, address the iconographic features of these artifacts and depend primarily—if not exclusively—on Greek literary sources for their interpretation; this overreliance on texts by foreigners, as we shall see, prevents a deeper understanding of Achaemenid history as well as the Persian notion of history. Furthermore, a much needed, more detailed synthetic treatment of the warfare images on seals, which is the centerpiece of this article, has not been done yet.¹⁰ While, traditionally, greater attention has been given to representations of warfare on large-scale monuments, attention to the military scenes on glyptics is advantageous for two reasons: first, they are much more numerous than those on large monuments and second, they present interesting contrasts that prove fruitful for historical enquiry.

Despite the near absence of military scenes on Persian official monuments, there is a large corpus of warfare images on Achaemenid glyptics—at least 63 (and potentially an additional 46) examples germane to “land-warfare” and including “at least one Persian participant,” according to recent statistics provided by Christopher Tuplin (2010: 112, forthcoming). In contrast to the lack of warfare scenes on monumental art, more military representations are found on seals of the Achaemenid period than any other periods in ancient Near Eastern history (Collon 1988: 92).¹¹ Further, the Behistun relief, the sole example of a warfare scene on monumental art, was carved by Darius I—but seals depicting warfare during Darius’s reign seems to be quite rare in comparison to the wealth of glyptic evidence preserved. Among the 20,000–30,000 sealed clay tablets in the Persepolis Fortification Archive dating to Darius’s years 13–28 (509–493 B.C.) and over 2500 different seals identified to date in the archive, only six or so

¹⁰ In fact, in the past few years, some scholars have realized the necessity of treating the warfare scenes as a group rather than in isolation (Ma 2008: 10; Tuplin 2010: 112–118). And Christopher Tuplin has already demonstrated the usefulness of the warfare images on seals and bullae in his work on the Achaemenid military organization and tactics (Tuplin 2010: 112–118). My current work has benefited from his statistics and study of these seals.

¹¹ In his most recent publication, Mark Garrison (2011: 391, note 31) notes that despite their large number in the monumental reliefs of the Neo-Assyrian period, warfare scenes are exceptionally rare in glyptic art.

depicting warfare scenes (barring the Elamite *antique* PFS 93*), to my knowledge, have been identified and catalogued.¹² There is, quite surprisingly, even a lack of replications of the Behistun motif in any form within this immense body of glyptic evidence. Moreover, in the Achaemenid warfare scenes, the enemies are clearly identifiable as Greeks, Egyptians, and people living in Central Asia and Eurasian steppe, with this last group being no less prominent than the Greeks. This prominence stands in sharp contrast with the impression created by written narratives, in which people from Central Asia make a negligible impact.

¹² For a comprehensive summary of the content of the Persepolis Fortification Archive, see Henkelman 2008: chapter 2, 65–179. For more details about the archive, see Briant, Henkelman and Stolper 2008.

The handful of examples of warfare scenes from the Persepolis Fortification archive include one that is impressed on the reverse of Tablet PF-NN1478. A picture and a drawing of this seal have been illustrated respectively online in the Oriental Institute at University of Chicago's 2009-2010 Annual Report by the Persepolis Fortification Archive Project (http://oi.uchicago.edu/pdf/09_10_PFA.pdf, Page 87, Fig 5) and by Mark Garrison at the 220th Annual Meeting of the American Oriental Society 12–15 March 2010, St. Louis (Garrison 2010). The seal (PFS 2454, olim 2286, Tuplin, forthcoming) depicts a military confrontation between a person with long Elamite robe and a Saka/Scythian figure from the steppe (more details is given in this article in Section IV).

The second example, PFS 1156, is recorded as appeared on Tablet PF 1209 (Garrison and Root 1996: 55). As far as I know, the seal has not been illustrated in any published form, but in a footnote of a recent article, Margaret Root (2012: 32, note 21) mentions that the seal is “preserved only in fragmentary form through a single impression. A palm tree is visible (a distinguishing characteristic of royal name seals), followed by one figure who appears to lead another figure by a rope or pole attached to his neck” (ibid.). The depiction seems to be quite different from that of Behistun: “the apparent captive prances along as if doing a jig” (ibid.). The seal could have belonged to a certain Mišatruš, who received wine at the place Harima and gave it to three nursing women (workers). The seal can be dated to Year 23 of Darius's reign (499 – 498 B.C.) (cf. Hallock 1969: 346).

The third example (PFUTS 273), unpublished, was shown by Mark Garrison at the 2011 ASOR Annual Meeting, November 16–19, San Francisco, CA in the session of “Archaeology of the Persian Empire: in Honor of David B. Stronach.” The seal is described by Tuplin (forthcoming, cat. 3).

I have seen or worked on the impressions of three additional seals that represent warfare images thanks to Mark Garrison and Matthew Stolper, who provided me the opportunity to work on the seals applied on the travel accounts from the archive. Two of the seals (PFUTS 251 and PFUTS 305) are described by Tuplin (forthcoming cats. 62,71). The unpublished examples promise to enhance our knowledge of the type of warfare images during the reign of Darius, but they will not alter any of the interpretations set forth in this article. The seals are especially important for understanding the crucial issues of image policies and relationship between monumental and glyptic art at Persepolis under Darius's reign. I hope thorough studies will be devoted to them in the near future.

These seals, produced within the historical and ideological framework of the Achaemenid Empire, can be viewed as contemporary Achaemenid *testimonia*. When treated as an integral corpus, they provide another solution to the “lack of evidence” problem by providing firsthand explicit evidence (as opposed to secondhand opinions of the classical authors) about the history and martial ideology of empire. War is as much ideological as physical, and thus the seals provide important clues not only about who was fighting, but also about how elites in the Achaemenid Empire understood kingship, military prowess, and their self-identity.

The Achaemenid warfare images typically show warriors of different ethnic or political groups engaged in military combat against each other (Pl. 4). The actions are often set under the figure of a winged symbol, whose identification is yet not clear but is perhaps related to the divine spirit that protects the Achaemenid Empire or its Great King (Moorey 1978: 146–49; Root 2012: 53–54, with bibliography). We can identify the ethnic origins of the warriors by studying visually their distinctive features such as costume, weaponry, and headdresses. In this regard, comparisons between the figure on the warfare seals and those on the monumental reliefs at Persepolis (e.g., Pl. 5. b), especially those on the façade of the royal tombs at Naqsh-e Rostam whose geographic origins are specified by the accompanying cuneiform inscriptions (Schmidt 1970; my Pl. 5. c), are particularly helpful.¹³ The triumphant one or victor-to-be has been generally identified in scholarly writings either as “Persian” or “Oriental” by his Persian-style battle apparel—round helmet, vest or cuirass, and spear—or as a member of one of the core ethnic groups of the Achaemenid Empire (Persian, Elamite, Median, or some groups from Central Asia). Occasionally the victor is the Persian king himself, identified by the crown with zigzag top and the Persian court dress. The defeated are then recognizable through their markers as Greeks (Pl. 6), Egyptians (Pl. 7), or inhabitants of

¹³ Scholars disagree with the identification of some figures on the reliefs in Persepolis and elsewhere in the empire. For example, some of Roaf’s identifications were questioned by Cameyer (1982, 1983) or Dutz and Matheson (Dutz 2000: 48). The ambiguities were caused by two reasons: first, the Achaemenid artists who carved figures were probably not always familiar with their subjects; second, some of the figures on reliefs from elsewhere are not among the labeled figures on the tomb reliefs. For example, delegation No. 16 depicted on the Persepolis staircase, which was sometimes identified as the Sagartians, was not depicted on the tombs, although the nation was mentioned in various Persian royal inscriptions (see Schmidt 1953: 119).

Central Asia and the Eurasian steppe, including the Sakas, sometimes referred to as Scythians,¹⁴ Sogdians, Chorasmians,¹⁵ and occasionally Bactrians or Parthians,¹⁶ (Pls. 4, 5. a, 9–12, 13. b–c).

One can categorize the warfare scenes into two different representational modes (though it must be kept in mind that there is no strict division between the two): an iconic one that shows the aftermath of a battle and a narrative one that represents ongoing actions. The aftermath scenes, derived from the relief at Behistun, and perhaps also the second-millennium-B.C. Elamite rock relief at Sar-i Pol, typically depict a hero leading a file of captives (Pl. 8. a). The ongoing scenes portray specific battlefield moments, as exemplified by the image on the famous heirloom seal PFS93* preserved on a number of clay tablets from the Persepolis Fortification Archive (Pl. 8. b). An inscription on the seal that reads “Kuraš of Anšan, son of Teispes” indicates that PFS93* might have belonged to Cyrus the Great’s grandfather, who lived in the mid-seventh century B.C.¹⁷ The seal image

¹⁴ Saka (sgl.) or Sakā (pl.) in Old Persian, and Scythian in Greek, refer to the various nomadic tribes living on the frontiers of the Achaemenid Empire (Vogelsang 1992: 97). They consisted of several distinct subgroups: Sakā Haumavargā (the haoma-drinking Sakas), Sakā Tigraxaudā (the pointed-hat Sakas), and Sakā para Sugudam (Sakas beyond Sogdiana) lived in Central Asia (Vogelsang 1992: 98–99, 115–116, 130, 216–217; Dandamaev 1989: 136–140), and Sakā tyaiy paradrava (the European Scythians) lived in the Black Sea area (see Briant 2002: 173; Dandamaev 1989: 137).

¹⁵ The people from Central Asia or the steppe all wear tight body-hugging coats with cut-away fronts, loose pants tucked into shoes or boots, and soft caps with knobs on top and earflaps fastening under the chin (Roaf 1974: 111–12, 117–21). A precise identification of the different groups from Central Asia, especially those from Sogdiana, Chorasmia, and some Saka tribes, is difficult, since the only features distinguishing these three groups, as the Achaemenid reliefs show, are the slightly different positions or the shapes of the knobs on the caps. For a discussion on each group’s distinctive features, see Wu 2005: 69–70.

¹⁶ Distinguishing between the Parthians and the Bactrians has been problematic since the garments represented on the Achaemenid reliefs are not always consistent (Roaf 1974: 108–10). The Parthians and Bactrians both wear a knee-length tunic of the Median type, and loose trousers tucked into shoes or boots. On some reliefs, the Bactrians are shown wearing simple fillets (e.g., on kings’ tombs I, III, IV at Naqsh-e Rostam), and on others are bareheaded (e.g., royal tomb II at Naqsh-e Rostam, statue of Darius from Susa). The rendition of their footwear is also inconsistent: they wear sometimes shoes and other times low boots or high boots (for details, see Roaf 1974: 109).

¹⁷ There is a substantial literature on this seal; the most important works include Amiet 1973; Bollweg 1988: 53–58; Garrison 1991: 2–7; Garrison 2011; Briant 2002: 90. The stylistic tradition that this seal and a group of similar seals follow has been subject to heated debate. Amiet categorizes them as “Neo-Elamite” (1973), but Garrison argues that they demonstrate an “Early Persian” style (1991: 6; 2011).

represents a warrior on horseback attacking his enemy with a spear. The defeated, with a supplicant gesture, is fleeing while turning his back toward his antagonist. Two enemy corpses stacked on the ground denote that the battle's ending is imminent. The iconography follows, directly or via the Neo-Elamite intermediary, an earlier Neo-Assyrian tradition.¹⁸

Achaemenid warfare representations have been found throughout the empire. They are executed in various styles, ranging from the fine Court Style created near Persepolis and closely associated with the Achaemenid royal court,¹⁹ to a variety of loosely defined Persianized styles, so-called because they were produced in disparate local workshops outside of Persia but display iconographic or cultural links with the Achaemenid hegemony (Kaptan 2002: 2–4). Besides the Behistun relief and its Babylonian subset, the earliest representations of the battles or their consequences are attested on the handful of cylinder seals preserved on tablets in the Persepolis Fortification Archive (509–493 B.C.).²⁰

Warfare images on seals seem to have become more frequently depicted during the reign of Xerxes (r. 486–465 B.C.). Aside the examples from the Persepolis Fortification Archive, the earliest securely dated examples—PTS 30 and PTS 29—are preserved on tablets from the Persepolis Treasury (492–460 B.C.) and dated to, respectively, the 16th year (470/469 B.C.) and 20th year (467/466 B.C.) of Xerxes's reign.²¹ Besides these examples, the Treasury provides an additional warfare image on a seal that can be dated to the last years of Xerxes's or beginning of Artaxerxes's reign

¹⁸ For the latest study of the seal, including its artistic origin and relations with Neo-Assyrian and Elamite art, and other surrounding issues, see Garrison 2011.

¹⁹ The Court Style is an artistic mode established in the heartland of the empire during the later years of Darius's reign in the end of the sixth and beginning of the fifth centuries B.C. and was represented in both monumental and glyptic art as well as luxury metalwork initiated and developed at Persepolis. The designation "Court Style" was introduced by Boardman (1970: 305). The term has been used widely to denote images that are broadly similar to the ones from Persepolis. Garrison (1988, 1991) and Root (Garrison & Root 2001) have defined the term more clearly and demonstrated the process of the spread of the style.

²⁰ Only two of these have been published at conferences. For a list of these seals, see note 12.

²¹ The date of the Treasury tablets spans the last six years of Darius, the entire reign of Xerxes, and the reign of Artaxerxes I until the last month of his fifth year (Cameron 1948: 1). PTS 30 and PTS 29 are dated based on the tablets they sealed or datable seals that co-existed with them (for co-relation between seals and tablets, see Schmidt 1957a: 29–30; for relevant texts, see Cameron 1948: 56–57, 134–135, 137, 182–183, 190–191).

(PTS 28, Schmidt 1957: 20-21, 30, Pl. 9). Moreover, at least two examples of warfare scenes on cylinder seals have been preserved through their impressions on some twenty un-inscribed triangular clay tablets and bullae from yet another locus at Persepolis. These examples are among the six or seven seals, which were impressed on over 60 un-inscribed tablets and bullae discovered by Akbar Tadjvidi in 1968-1973 inside a fortification tower at Persepolis (Tadjvidi in Goff et al. 1970: 187; Rahimifar 2005: 73, Pls. 16-18; for more information about the archaeological context, see footnote 76 below). The representation on one of the warfare seals, as judged by the pictures in Rahimifar's publication (2005: Pl. 18), appears to be identical to PTS 28 from the Persepolis Fortification Treasury, suggesting a similar date for the corpus recovered by Tadjvidi and those from the Treasury. Numerous examples of warfare seals—at least 15, each unique—have been found on tablets belonging to the Murašû Archive from Nippur that is dated to the reign of Artaxerxes I (465–424/3 B.C.) and Darius II (423–404 B.C.).²² Fourteen of them can be dated to the first seven years of Darius II.²³ Aršama, a royal prince and a son of Darius I, also owned an extraordinary example of such a seal.²⁴ Multiple examples have also been found in Anatolia, especially Phrygia, on sealings excavated from Daskyleion and Seyitömer and dated broadly to the fifth to fourth centuries B.C. on the basis of style or the dates of the archive.²⁵ A further

²² According to Bregstein's categorization, there are 17 military seals out of 664. The real figure should be 15 (nos. **195** and **199** are to be excluded) and perhaps 12 since nos. **196-198** are debatable. For a description of each seal, see Bregstein 1993: 581–595.

²³ The exception refers to the seal of Ribat, son of Šamašaja. The seal has been found on three clay tablets, CBS 13021, CBS 5437 (or BE 9 107), CBS 5364 (or PBS 2/1 130), which are dated accordingly to 429 B.C. and 424 B.C.—the 36th and 41st years of Artaxerxes I (464–424 B.C.)—and in 418 B.C., or the 6th year of Darius II (423–405). For the date of PBS 13021, see Stolper 1974: 261; for CBS 5437, see Hilprecht 1898: 107; for CBS 5364, see Clay 1912: 130. Also see Wu 2005: 72–73; Wu 2010: 556, fig. 512.

²⁴ Aršama bears the title *bar bayta*, “the son of the House”, cf. Driver 1954: 6, Tuplin 2011: 13–17. The phrase is a literal translation for an Aramaic phrase (itself a loan translation of an Iranian phrase) which means “male member of the royal house,” i.e., “prince.” I am indebted to an anonymous reader of this article for clarifying the term. The seal has been thought belonged to another Aršama, Satrap of Egypt, under the reign of Artaxerxes I and Darius II, perhaps between 454 and 407 B.C. For most recent study on Aršama, see Tuplin 2011. It is not clear when exact the seal in question was carved. For detail discussion of the seal image and the date, see Wu 2005: 78–81. For more information of Aršama's seal, see note 40.

²⁵ Kaptan 2002: 12. Most of the bullae from Daskyleion fall into a chronological frame between 479/478 and 375 B.C. (Kaptan 2002: 27). It is noticeable that among the 22 seals

example, depicted on a stamp and preserved on a jar sealing, has been recovered from Kyizeli gyr, which is an Achaemenid period site in Turkmenistan (cf. Rapoport et. al. 2000; Wu 2005: 429, fig. 29b). In addition, numerous examples are, unfortunately, unprovenanced and therefore do not give us any firm evidence for dating. A few such examples, all belonging to disparate early collections of nineteenth or early twentieth centuries, are cited here to primarily illustrate the iconographic and stylistic variations of the warfare representations.

Section II. Warfare Representations and Historical Narrative: Theoretical Considerations

Can we use the warfare scenes, such as the seal images described above, as a source for studying Achaemenid history? Is there a kernel of something specific or historical, rather than stylized, about these seal images? Textual historians and art historians answer these questions quite differently. The former frequently consider the Achaemenid warfare images, especially those accompanied by inscriptions, as depictions of actual historical events rather than merely “motifs.” Consequently, this contingent attempts to match the representations with preserved textual records (Dandamaev 1976; Stolper 2001; Briant 2002: 215; Ma 2008). For example, a cylinder seal in the Pushkin Museum in Moscow, which carries the image of an Achaemenid king or Persian hero²⁶ leading a file of three Egyptian prisoners and an Old Persian inscription that reads “I am Artaxerxes, the King” (Pl. 7. a), has long been recognized as documenting the Persian triumphs over the revolts in Egypt during the reign of Artaxerxes I (r. 465–405/404 B.C.) in the mid-fifth century B.C. or Artaxerxes III (359/358–338 B.C.) during the mid-fourth century B.C. on the basis of the inscription and the events documented by classical authors.²⁷

and seven seal impressions of Achaemenid date from Gordion, no warfare scene has been identified (Dusinberre 2005).

²⁶ The identification of the victor is ambiguous because it is not clear whether he had on his head a Persian royal crown with a zigzag top or a feathered crown that is sometimes seen worn by the Persian soldiers on reliefs at Persepolis.

²⁷ For classical references on the Egyptian campaigns of Artaxerxes I and Artaxerxes III, see Briant 2002: 215, 574–576 (for Artaxerxes I’s war against the revolt of Inarus in Egypt in ca. 464–462 B.C.) and 652–655 and 682–683 (for Artaxerxes III’s war against Egypt during 361–351 B.C.). For an earlier date of the Moscow seal, see Chileyko 1925:

In contrast to the textual historians' approach, most art historians treat warfare scenes on seals as "motifs" and avoid making any direct associations between such images and actual historical events (Root 2012: 32, fn. 21), because of three main concerns: first, the images lack accompanying explanatory inscriptions; second, they share formal characteristics, including compositions and antagonists' postures, with hunting scenes;²⁸ and third, they often contain visual tropes.

Both approaches are somewhat problematic. Regarding the textualists' approach, the inherent pitfall lies in the tendency of matching artistic and archaeological evidence with textually documented events without the necessary argumentation. The problem is that an inscription accompanying a representation does not by default bestow upon the image any direct link with an actual or specific historical event. As mentioned above, for example, the Moscow cylinder seal carries an inscription; but the seal's text might simply serve as a token to establish the relationship between the seal owner and his position in the administrative system, without having anything to do with the actual image. Many ancient Near Eastern examples function this way (Winter 1986), among these examples also the royal name seals of the Assyrian and Achaemenid periods (Root 1979; Winter 2000: 54–60). Still the writing neither necessarily explains nor illuminates the image carved on the seal.

That said, one should not ignore the fact that images are fully capable of generating meanings and conveying important information without the aid of texts—in other words, a representation could contain historical information that is not preserved in any texts. Such information may be different from but by no means secondary or inferior to that of the written texts. Numerous studies have shown that in the ancient Near Eastern context, visual narratives were often compiled independent of written narratives.²⁹ In fact, the Behistun relief is a major case in point. The relief, as Root convincingly argued, was probably "perceived as independent of the text" (Root 1979: 192–194). In a recent article on the relief, Root emphasizes once again that the visual arts of the Achaemenid period "were not secondary illustrations of textually-articulated ideals" (Root 2012: 28).

19; Stolper 2001: 111; Briant 2002: 215; for a later date, see Strelkov 1937: 20; Root 1979: 122, and Schmitt 1981: 36.

²⁸ See, for example, Boardman 1970: 315–316; Bregstein 1993: 79–81; Kaptan 2003. See Garrison 1991: 5; Garrison 2011; for examples of hunting and battle scenes on seals and on other media found in Anatolia, see Kaptan 2002: 74–76; Kaptan 2010: 367; for a comparative study of hunting scenes in Mesopotamia, Anatolia, and Greece, see Miller 2003: 23–43.

²⁹ See note 8 above.

The lack of accompanying texts on most warfare seals thus is not enough to summarily dismiss the possibility of there being any historical kernel in the warfare scenes either.

The pure art historical approach, which is often cautious about the syntax of visual language, sometimes over-emphasizes the formal attributes of images and ignores the fundamental differences between similar forms, such as hunting and military scenes. Despite the long tradition of correlation between these two types of activities in the art of the ancient Near East,³⁰ warfare differs fundamentally from hunting. Hunting, whether for subsistence, sport, or status,³¹ evokes human-animal relations. It can be either factual or fictitious.³² Warfare, except for those of mythical battles, which can be usually identified by the special attributes of certain participants, is a human relation. An organized violence of one human group against another, warfare must be institutionally organized, sanctioned, and appropriated (Bahrani 2008: 9–13). Congruently, in the ancient Near Eastern contexts, representations of warfare, which are created to glorify power through explicit public display of violence (*ibid.*), usually reflected factuality, at least to the extent that the participants, if not the outcomes, of the battle or war would be related to reality. The superficial overlap between hunting and warfare motifs thus should not lead us to automatically dismiss the possibility that the warfare images on seals could convey important historical information.

³⁰ The tradition of correlating the themes of warfare and hunting in artistic representations started as early as the fourth millennium B.C. in the Near East. Scenes of a ruler engaging in hunting and battle are seen on both seals and stone monuments from the late Uruk period (ca. 3300–3000 B.C.) For examples, see Strommenger 1980: 62; Moortgat 1969: Pl. 14; Pl. L.3; Amiet 1972: 695, 27i. During the Neo-Assyrian period, warfare and hunting games led by the king were juxtaposed both literally in royal annals (Grayson 1972) and visually in the royal palaces as two parts of a single, organically integrated program (Winter 1981; Winter 1983) designed to propagate the king's military-political and religious roles (Weissert 1995). At Nimrud and Nineveh, battle representations and hunting scenes are found side by side on the palace reliefs of the throne-rooms of Assurnasirpal II of the ninth century B.C. and of Assurbanipal of the seventh century B.C. (Barnett 1976; Winter 1981).

³¹ For juxtaposition of royal hunt and battle in textual sources and the religious connotation of royal hunting in the Neo-Assyrian period, see for example Weissert 1995.

³² Hunting in a fictitious environment or against mythical animals is especially popular in art produced for the Scythians of the Northern Black Sea area, where many works were created by Greek artists for their Scythian patrons (Miller 2003: 20, figs. 2.1–3). At Persepolis, large image fields at important spots such as palace doorways were given out to scenes depicting royal combat against both real and mythical creatures (Walser 1980: 90–96).

Neither should we erase this possibility because there is formal parallelism between the postures and gestures of both hunted animals and defeated enemies or the deployment of the visual tropes. Posture and gestures, as non-verbal communication, could play important and integral roles in anchoring meaning (Cohen 1997:169). Certain postures and gestures, such as a raised arm, could contain the ideological message of subjection and humiliation.³³ Most certainly, they are purposely selected to indicate, in our case, the supremacy of the Achaemenids and inevitable defeat of their enemies. A similar motive could lie behind the using of visual trope in warfare representations. Many of the Achaemenid warfare scenes recurrently depict certain visual tropes, such as the imagery of a victorious hero leading a file of enemies (Pls. 6. a, 7, 9. b) or plunging a spear into the neck of a half-kneeling enemy (Pls. 6. a, 7. b, 9. a), and corpses of the vanquished lying on the ground (Pls. 4. a–b, 6. d, 8. b, 9. a, 10. b).³⁴ The deployment of visual tropes is common in representations of warfare in ancient art or military art in general. Ada Cohen (1997: 24) describes vividly in her elaborate study of the Alexander Mosaic and the battle representations of the Greek world: “the course of every equestrian battle ... must have featured leaping horses, charging warriors, enemies fallen to the ground, who have become easy prey to spears against them from above or to horses’ deadly stampede.” The visual tropes, as Cohen suggests, do not necessarily mean that the referent behind the warfare image is non-historical or un-specific. On the contrary, successful visual tropes are often chosen to describe different and historically verifiable events, for in any given visual language the messages that the images intend to communicate are frequently encoded in fixed sets of visual tropes. As a matter of fact,

³³ See Cifarelli 1998 for her study of gesture and postures of the enemies of the Assyrian Empire; in her study of the Alexander Mosaic, Cohen (1997: 169–174) also offers an interesting and in-depth study of gesture and posture.

³⁴ For examples showing a fleeing warrior with back-turned head and up-raised hands and stacking corpses of the vanquished, see a seal preserved on two uninscribed bullae allegedly from Telloh in Mesopotamia (now in the Dutch Institute for the Near East [NINO] in Leiden and the Louvre Museum, Henkelman et al. 2004: 11, 16, 34–35), and a stamp seal impressed on clay sealings from Daskyleion (Kaptan 2002: 12, 27) (Pls. 9. c, 13. b); for corpses, see PTS 29 from the Persepolis Treasury, and the seal of Aršama, BM 132505 and the Oxus Seal at the British Museum, one from the Bibliothèque Nationale (Delaporte 1910: 224, pl. XXVIII, 403; Ward 1910: 328) (Pls. 4. a–b, 9. a, 10. b, 11. a), as well as on the pendant of a gold torque at the Miho Museum in Japan (see also notes 61, 63).

Achaemenid official art took its form almost entirely based on conscious choices of pre-existing visual tropes from Mesopotamia, Elam, Egypt, and elsewhere (Root 1979: 196–226).³⁵

In Achaemenid art, the representation of the corpses of the vanquished on the ground, sometimes being trampled, follows a traditional Mesopotamian concept established since the mid-third millennium B.C. Such images are seen on both “historical” and generic scenes.³⁶ This demonstrates that the repeated use of the same visual formulas on different media does not automatically require rejecting the historicalness of warfare images, being them on monuments or glyptics. Instead, the visual formulas could serve as a means of embedding a more abstract motif behind the actual event—a generic Persian victory over the Greeks, for instance, lying behind *this* Persian victory over *this* group of Greeks.

Aside from the above-discussed problems, another issue, more or less shared by art historians and textual historians, is the unequal treatment of evidence. This becomes apparent if one classifies the seals according to the geographic origins of the opponents, that is, the Greeks, Egyptians, and the people from Central Asia and the Eurasian steppe, then one sees that for both types of scholars, the images’ historicalness depends on the identity of the antagonists rather than even-handed treatment of visual evidence. For example, regarding the nature of the images showing conflicts between Persians and Greeks, it is almost intuitive for both textual historians and art historians to link the images to, if not specific events, then the broad historical background of the long-lasting Graeco-Persian wars of the fifth to fourth century B.C., because hostility between Greeks and Persians has been well attested by the preserved written accounts (among which the most famous is Herodotus’ *Histories*) and suggested by depictions on both monumental and portable media (such as tomb stele, vase paintings, and

³⁵ For example, as Root (1979: 196–98) has correctly pointed out, the composition and the various visual passages on the Behistun relief, such as the king standing with one foot placed on a prostrate living enemy, the king being offered a ring by a divine figure, and the file of captives, were formulated directly based on the representation on the ca. 2000 B.C.E. rock reliefs of Anubanini, king of the Lullubi tribes near Sar-i Pul in western Iran. The Anubanini relief is often considered “historical,” for it is accompanied by inscriptions that describe the events depicted (Porada 1965, rev. 1969: 36, Fig. 15).

³⁶ For examples of historical representations, see scenes on the stele of the Vulture, the Narim-sin stele, and also many reliefs in Assyrian palaces (Reade 1999: 80, fig. 95, 88, fig. 105); for scenes usually considered generic, see depictions on the Ur Standard and an Early Dynastic copper plaque with lions trampling enemies (Aruz 2003: 104).

seals).³⁷ Scenes showing warfare between Greeks and Persians on numerous Attic vases (>50%), especially those produced in the first decades of the fifth century B.C.,³⁸ are thought to have reflected the real experiences of the Greeks with the Persians (Bovon 1963: 597–598).³⁹ Considering the images of warfare between the Persians and Egyptians, it is also natural for scholars to connect the representations to the victories of Persian king(s) in Egypt since we have plenty of literary sources referring to military conflicts between the Persians and the Egyptians and also because of the inscription on the Moscow seal.

Nonetheless, when it comes to the nature of the representations of warfare between the Persians/Achaemenids and the people of Central Asia and the steppe, there is very little scholarly effort to treat the images together with the historical context of the conflicts between Persians and people of Central Asian and the steppe, despite the fact that we also have classical literary sources (albeit fewer than those citing Greek-Persian conflicts) that document such clashes (Briant 1984: 75–77). Among the seals showing combat against and victory over the Central Asians and the steppe people, some, as the Moscow seal, also carry inscriptions giving the names of the Persian king or royal prince. Among the examples are the seal of Aršama, a cylinder preserved through clay sealings allegedly from Egypt, and the fragment of another cylinder in the collection of Edward T. Newell (Pls. 4. a–b, 10. a).⁴⁰ The seal of Aršama depicts a battle duel between a warrior in

³⁷ For examples, see Cohen 1997: 24–37, 65–67; for a summary of the written accounts by classical authors on warfare narratives, especially concerning the usage of horses during the Graeco-Persian wars, see Tuplin 2010. In this article, Tuplin also mentions that there are over a hundred Attic vase-paintings with depictions of Persian figures and at least half of them have connection with warfare (Tuplin 2010: 118).

³⁸ Representations of Persians are found on over 100 Attic vase-painting of 510–350 B.C. Among these examples, more than 50% are related to warfare. Warfare scenes seem to be particularly popular in early fifth century B.C. and decreased drastically to near abandonment after 450 B.C. (Miller 2011: 125–127).

³⁹ John Ma argues based on the Persian representations of the Graeco-Persian conflicts that the visual evidence in the fourth century B.C. also shows clear awareness of Greeks and captures the ethnic specificity of the Greeks (Ma 2008: 5). See also Miller 2011.

⁴⁰ The clay sealings with impression of the seal of Aršama are currently housed in the Bodleian Library at Oxford University. For the issue of provenance of Aršama's archive and the dating of the seal, see Driver 1954: 4; Driver 1957: 1, 3, 10; for illustration and/or discussion of the seal, see Driver 1954: pl. XXIII; Moorey 1978: 149, fig. 8; Boardman 2000: 5.21, and Wu 2005: 78–81. A recent conference and exhibition, following a series of workshops, at Oxford University have brought back attention to the Aršama dossier,

the so-called Median dress fighting against a Saka or Sogdian opponent. It carries an Aramaic inscription that reads “Seal of Aršam the Prince” (Driver 1954: 4, note 4).⁴¹ The Newell seal shows two Persian warriors slaughtering two contestants wearing Central Asian garments. The seal carries an Old Persian inscription of the name of Artaxerxes in an Egyptian cartouche (von der Osten 1934: pl. XXXI/453, my Pl. 10. a).⁴²

Both the images and inscriptions of the seals representing conflicts between the Achaemenids and people of Central Asia and the steppe are structurally and functionally comparable to those with depictions of warfare between the Persians and Egyptians and the Achaemenids and Greeks. If we assume that the protocols of representation of similar subjects in any given society or culture, either in written or symbolic language, are coherent and consistent, and acknowledge that the representations of the military conflicts between Persians and Greeks or Egyptians carry historical information or at least reflect a certain historical context, we should then accept that the images of warfare between Persians (and their associates) and people of Central Asia and the steppe (and potentially also other ethno-geographic groups) equally contain information about the historical situation concerning the hostile relations between the Achaemenid empire and its frontier in Central Asia (and elsewhere).

The problem that needs to be addressed is: can we really make the assumption without any theoretical justification that visual representation of warfare between the Persians and Greeks, and the Persians and Egyptians, and hence also the Persians and Central Asian and steppe people, indeed conveys actual historical events? Fundamental to the discussion are the contingent questions of whether there is any distinction among the warfare images that represent generic “motifs,” on the one hand, and those that depict specific historical events, on the other, and whether the images represent specific events or refer to warfare in general.

including the seal image. A new composite drawing of the seal was recently collated by Mark Garrison. Hopefully it will appear in publication soon.

⁴¹ For discussion of Aršama’s title, see note 24.

⁴² For discussions and date of the Newell seal, see Schmitt 1981: 34; Stolper 2001: 108–109. An interesting question, raised by Christopher Tuplin (pers. comm.), is why the OP inscription on the seal is in an Egyptian cartouche. One possible explanation is that the seal owner was an Egyptian but had acquired his status as an Achaemenid elite or even Persian citizenship because of his deed and bravery on the battle field (cf. below); another interpretation is that he was ethnically a Persian but had a certain position in Egypt. The inscription for royal named thus followed the Egyptian tradition.

Reading Battle Images as Sources for Historical Reconstruction

To answer these questions, it is necessary to clarify the theoretical underpinnings of the warfare images. I will first define certain terms and then discuss the various means of commemorating and preserving history in visual records. First of all, I use the term “history” to refer to a discourse of events and facts, while the contingent term of “historical event” refers to an incident that has occurred in real human life rather than myths or legends. Second, it is requisite that the “factuality” or “historicity” of an event is irrelevant here. “Absolute truth”—as a conscious construct to carry moral values of the ruling class (White 1980: 23)—is only a reified and highly manipulated notion (Winter 1985: 13). What matters is not what happened, but rather what people claim or believe happened. A search for whether or not the depicted event ever occurred is thus not particularly productive and therefore will not be a subject of discussion here. Priority is given to events that were *perceived* to have occurred in the past. Third, history can be presented through visual representations, which could be either a single iconic image that “refers” to a historical event (such as the Behistun relief), or a pictorial narrative that “tells” the story of the event (either in a cumulative mode—a single image that “nonetheless through its action enables one to ‘read’ the event”, for an example, see the Narim-Sin Stele—or a sequential mode—a “juxtaposition of successive episodes”, for examples, see the Stele of Vulture and many Assyrian palace reliefs) (Winter 1985: 12). Both are created to communicate the ideology of the winners, although the iconic mode requires more prior knowledge than the narrative mode. The iconic mode focuses more on the rhetorical aspect; the narrative mode, in contrast, emphasizes more the actual process of the events, although the distinction between the two modes can sometimes be, often purposely, vague (Winter 1985: 28). In visual representations, the purported historicity of the event is usually embodied and embedded in detailed and accurate depictions of the specific, and frequently unique, features of the participants, their actions, as well as the place where the actions took place. In other words, in a warfare scene, the more specific and unique the depiction, the higher the level of historicity **intended**; greater detail tends to indicate a rendition of an actual (real or purported) historical event, while lack of detail inclines to suggest a genre image. Meanwhile, warfare scenes exist on a sliding scale, with no clear-cut line or rigid distinction between the categories of actual historical event and genre scene.

The strategy of presenting (or forging) history through meticulous details has been repeatedly used in ancient Near Eastern and other cultures of antiquity,⁴³ best illustrated by the narrative relief programs in the Assyrian palaces of the ninth to seventh centuries B.C. in Nimrud and Nineveh (Winter 1981; Winter 1997; Russell 1991; Pittman 1996; Reade 1999). These monuments, created to commemorate the power and victories of the Assyrian rulers, portray the events as “historically accurate” by unfolding miraculously innumerable details showing how the participants engaged in various incidents. The Assyrians and their enemies are both distinguished unambiguously through their physical and emblematic attributes, such as headgear, garments, weapons, and the distinctive and usually foreign landscapes in which the battles were fought.⁴⁴ In some cases, for example in the Near Eastern art of the earlier period, the defeated were illustrated as being naked.⁴⁵ On the one hand, this nudity or nakedness must have communicated specific cultural meanings in the Near Eastern context, such as the notion of humiliation and death.⁴⁶ On the other hand, lacking specific identification markers, the defeated cannot be recognized as belonging to any particular ethnic group (Roaf 2005: 309). In this case a warfare depiction, rather than representing a specific incident, works as an embodiment of the abstract concept of victory of one institution over another.

Using details and specific attributes and distinction between different categories—iconic versus narrative, and historical versus generic—to make a representation historically veritable seem to be also a strategy for the Achaemenid warfare scenes. The images on the warfare seals all demonstrate, in a sense, specificity; the majority of them also demonstrate an effort in rendering the precise ethnicity of the contestants, and some even

⁴³ The column of Trajan, which was dedicated to the Roman Emperor Trajan in A.D. 113, is an excellent example. For detailed discussion of the narrative scenes on the column, see Brilliant 1984.

⁴⁴ Wäfler 1975; Russell 1991: 155, 192, 209; Marcus 1995; Thomason 2001; Nadali 2005. For examples, see representations of the Battle of the River Ulai in the North Palace of Ashurbanipal (668–?627 B.C.; Collon 1995: 147–50, figs. 118–19) and the Siege of Lachish in the Southwest Palace of Sennacherib at Nineveh (Russell 1991: 253, fig. 130).

⁴⁵ Moortgat 1969: Pls. 49, 134–136, 138, 157, L.3; Asher-Greve 1998: fig. 9, Cifarelli 1998: fig. 15. On the differences between masculine and feminine nudity and their metaphoric interpretation, see Bahrani 2001, chapter 3.

⁴⁶ Nudity or nakedness could also mean “deprivation ... and social dispossession ... enslavement” (Asher-Greve 1998: 20) or “wildness, stupidity, amorality, shame, or destitution” (Cifarelli 1998: 219–220).

show idiosyncratic personal traits. That said, there are indeed differences among the warfare representations in Achaemenid art: some images received more complex treatment and show greater detail, and others less so; the former intends, at least more likely, to be depictions of real historical events, and the latter focus more on conveying rhetorically the notion of victory. The following case studies I explore, such as the Oxus seal and the Çan sarcophagus, demonstrate distinct ways of interpreting battle scenes for “historical” purposes.

Case Study 1: The Oxus Seal

Among the more specific scenes, the best example is the representation of human combat on a blue chalcedony cylinder seal, which belonged to the “Oxus Treasure” currently housed at the British Museum (Dalton 1964). The Oxus seal consists of two scenes separated by a vertical line in the middle, communicating two successive episodes of a battle (Pl. 9. a). The first episode represents an unfinished duel between a warrior wearing Persian-Elamite court dress and carrying a typical Elamite bow and quiver confronting an enemy (probably a Bactrian) from Central Asia.⁴⁷ The Persian-Elamite antagonist strikes his opponent with a spear, but he is also threatened by the latter, which is about to thrust a dagger into him. Here, the identity of each participant is clearly defined by his mode of dress and weapons. The inevitably doomed fate of the Central Asian warrior is indicated only by his delayed action in combat: his dagger is still in the air while his antagonist’s spear has already reached his body. The representation on the other side of the vertical line reveals the consequence of the previous incident: the Persian-Elamite hero grasps one arm of his enemy and thrusts his spear into his opponent’s body, as suggested by his bent-over posture; the Central Asian warrior is half-kneeling on the ground, and his dagger is now pointing toward himself, while his comrade is trying to support him on the shoulder or save him by pulling him up from the ground. The suppliant gesture of the comrade, the additional corpses on the

⁴⁷ The identification of the enemy figures is somewhat ambiguous. Their garments and alleged provenance of the seal (from the territory of ancient Bactria) make it more likely that the defeated represent the Bactrians, but they could well be Parthians, for distinction between the Parthians and the Bactrians has been problematic (Roaf 1974: 108–10). For a discussion of the ambiguity of the enemy figures see also note 15.

ground, and the now-separated divine symbols in the air announce that the battle is over.

The Oxus Seal certainly qualifies as a pictorial narrative, but does it document an actual historical event? I suggest it does for several reasons. First, the subject matter is neither explicitly religious nor mythological—the contestants do not exhibit divine, semi-divine, or mythical traits—but rather a conflict between two human groups identified through their contrasting physical attributes. The distinctions between the figures, moreover, are not just prototypical but rather specific: the two Central Asian figures, despite their identical clothes, are distinguished in that one is bareheaded and the other wears a hat (now floating in the air), which may indicate a different status. And second, the actions are “told” through successive and divided episodes; the events of the conflict between the contestants and the final victory of the Persian-Elamite hero can be read as a linear progress from left to right without the aid of a text. The movement toward the Persian-Elamite’s victory is thus both spatial and temporal.

The combat scenes on the Oxus seal, I suggest, should not be understood as an “exact transcription” of a combat between a Persian-Elamite warrior and a group of people from Central Asia, but as a shorthand “visual synecdoche” of a military conflict between the Achaemenid Empire and its enemy.⁴⁸ The Persian-Elamite stands for the empire, and the people of Central Asia for the enemy. A particularly challenging question is whether the image represents a general situation of a war, or a specific battle, or even one specific encounter during a specific battle. We are not able to give a definite answer because: (a) the pictorial surface does not contain such information; and (b) the seal does not bear any explanatory inscription to provide us such information. Nevertheless, these two reasons do not necessarily force us to reject the possibility that the image refers to a specific historical event, or at the very least, contains important historical information; they do, however, leave open the question of whether or not the image was intended to depict a specific historical event, whether it was meant to suggest a longstanding antagonistic relationship between two peoples—or both. This ambiguity is very likely deliberate and would always remain: for the battle participants and its immediate audience, it

⁴⁸ The term “visual synecdoche” has been used by Cohen (1997: 105) to describe the Alexander Mosaic. I find it also appropriate for describing the Achaemenid warfare scenes and thus borrow it here.

could represent a specific incident, or even moment; for those who were not fully informed about the incident/event, the image could be a visual embodiment of the bravery of the victor or the triumph of the Achaemenid Empire over its Central Asian enemy, or even enemy in general. The image thus functions as a carrier of Achaemenid rhetoric.

Case Study 2: The Çan Sarcophagus

An examination of the battle relief on the Çan sarcophagus from Phrygia and the scientific study of the skeletal remains found inside it allow for a more confident suggestion that the battle narrative on the sarcophagus could represent a specific event (Pl. 3. a). The relief depicts a horseman in typical Persian battle attire (trousers and cuirass with a neck protection on the back) thrusting a lance toward a fallen Greek warrior, who wears a fillet on his head and a knee-length tunic, in a rocky landscape. Behind the Persian cavalryman on his left side is an infantry figure, who wears a tunic similar to the fallen figure and holds a makhairas, a curved sword of a Greek type, in one hand and a spear and shield in the other.⁴⁹ The image depicts an ongoing action; the contestants are explicitly defined through their garments; the characteristic landscape indicates the spatial aspect of the incident.

The osteological analysis of the bones interred inside the sarcophagus suggests that the deceased was a young man who had been badly injured by an accident that caused him to fall down on the left side of his body a few years before his death. The wound healed, but imperfectly. This analysis leads the excavators to believe that the representation depicts the real-life experience, or an “autobiography” as they called it, of the deceased: he must have participated in a battle, which was depicted on the sarcophagus, and fell off the horse and became crippled (Sevinç et al. 2001). A re-assessment of certain iconographic details, especially the identification of the infantry figure behind the Persian horseman, further supports the historicity of the battle image on the sarcophagus. The figure has been differently identified as a Greek or a Mysian mercenary serving as the hench-

⁴⁹ For actual example of makhaira and representations of such weaponry in Greek art, see Litvinskiy & Pičikiyan 1995. In the initial publication, the scene was interpreted as a combat between an Anatolian dynast and a Greek (Sevinç 2001). John Ma, who offered a new reading of the relief, suggests that the defeated is, instead of a Greek, the Mysia or Pisidia of Anatolia (Ma 2008: 7–9).

man of the Persian warrior (Sevinç et al. 2001: 417, note 74; Ma 2008: 9). The identical garment and equipment of the assumed “henchman” and the fallen enemy, however, suggest that the two must have belonged to the same regiment as the Persian’s opponent, for in a battle the participants must be clearly distinguished, and battle garb is the primary identity marker on a battlefield. Therefore, the figure behind the horseman, rather than passing a weapon to his Persian master, as the excavators believed, may be instead thrusting his sword into the left hind leg of the horse. His action could have caused the warrior on horseback to fall off of his steed. This reading agrees with the hint offered by the bone analysis and explains the reason that the deceased was injured on the left side. If this explanation is acceptable, we are then facing a highly accurately narrated specific historical incident.

Case Studies and Comparison

Unlike on the Çan sarcophagus, which appears to be the primary medium or carrier for the human subject of its decoration, the warfare images depicted on some of the more portable objects, including the Oxus seal, may represent copies of images or selective excerpts of a more extensive additive composition originally designed for some larger perishable or lost medium, such as a palace relief, wall painting, funerary monument, or even a textile wall-hanging.⁵⁰ The limited surface of the Oxus seal demonstrates

⁵⁰ Both written sources and archaeological remains from Iran and elsewhere in the Persian Empire attest the existence of such media. For example, the Book of Esther in the Hebrew Bible describes that the walls of the Persian palaces were covered with hangings of cotton and decorated with linen (Esther 1:6, English Standard Version 2001). This claim is supported peripherally by the discovery of the felt wall hangings pictorial woolens in Achaemenid style in the nomadic kurgans at Pazyryk in the Altai Mountains of southern Siberia (Russia). Clay tablets from the Persepolis Treasury that mention payments to artists at Persepolis for making wood reliefs and sculptures indicate that the palaces at Persepolis were perhaps also decorated with wooden relief sculptures (for accounts on payment to wood workers, see Cameron 1948: 12, 14–15, table 1). The relief may of course also refer to small-scale decorations on furniture.

Wall paintings and incised images depicting a man hunting in a chariot, and a wild animal and other scenes, have recently been discovered at Dahan-i Gulaman in Seistan, an urban settlement occupied during the sixth to fifth centuries B.C. (Sajjadi 2007). Pigment remains, which were originally used to decorate walls at Persepolis, and fragments of wall paintings from Susa provide further evidence for the possible lost media of wall painting. Unfortunately, however, none of these sources directly record a Persian practice of creating narrative representations of warfare on large-scale monuments.

the constraints of such a medium for recalling a historical narrative: it necessarily contains only a small image field. Despite this, the design on the seal is ambitious and demonstrates a strong sense of monumentality. The two episodes—the unfinished duel on the left and the final victory of the Persian-Elamite on the right—are separated by a vertical line carved in between. This practice of dividing the image field into two successive incidents is extremely rare for glyptic design in the ancient Near East. It could be an indicator that the seal had copied images of some wall reliefs; the vertical line on the seal surface could be an imitation of the division line between two stone slabs.⁵¹ This hypothesis could be entirely possible, for seal images replicating palace reliefs were commonplace during both the Neo-Assyrian and Achaemenid periods (Winter 2000: 64–82; Allen 2005).⁵² The large-scale representation of combat on the Çan sarcophagus and on other artifacts, such as the Munich wooden beam, are often considered to have been created based on Persian models (Sevinç et al. 2001; Kaptan 2003; Summerer 2007b; Summerer and von Kienlin 2010: 120–185); these examples offer further, if indirect, evidence for the possible existence of similar scenes on large monuments in Persia (Pl. 3).

That the scene on the Oxus seal may have been derived from a large unpreserved Ur-monument does not require the rejection of the possibility of the seal carrying historical information. On the contrary, it is my argument that a faithful copy, or a close derivative, of a historically specific scene can also be considered, in a broader sense, as “historical.” If the audiences of both the original and copies adhere to the same code and ideology, a copy of an image in another medium or another place, despite altered details, would only stress the actual occurrence of the event and its historical significance. A stone stele that was perhaps originally set up along the western wall of the Procession Way at Babylon supports this hypothesis.⁵³ The stele carries a text and a relief that were clearly derived from the Behistun Monument. The relief represents a selective excerpt of

⁵¹ I am indebted to Irene Winter for this hypothesis.

⁵² Such practice in Achaemenid art can be best exemplified by the seal image preserved through its impressions on clay bullae from Daskyleion, which replicates the audience scene depicted on the Treasury relief at Persepolis (Kaptan 2002: I, 31–32; II, figs. 47–59; Allen 2005).

⁵³ The stele was perhaps erected along the western wall of the Procession Way in Babylon: most of the fragments of the stele were excavated from the Procession Way and the destruction debris of the western wall of the Procession Way (Seidl 1999a: 113).

the Behistun Monument; it shows a reduced version of the Behistun image, depicting as it does the Persian king trampling on one and facing another two captives (Pl. 2. b). That the Babylonian monument is derived from an existing monument does not erase the historical information it contains; rather, it made the monument a deliberately tailored piece to better address the specific audience of Babylon.⁵⁴ In fact, in the Achaemenid context, both visual passages and inscriptions replicating those that appeared on earlier monuments were important propaganda tools deployed by the Persian rulers to reinforce and disseminate royal ideology. In the Old Persian version of the Behistun inscription (DB§70), Darius claims that he had made the inscriptions on clay and parchment and sent them off throughout the empire.⁵⁵ This claim has been confirmed by actual finds of the various versions of the DB texts, in different languages (Babylonian, Elamite, Old Persian, Aramaic) and at various places within the empire (Babylon, Susa, Elephantine). The historical information that the Behistun Monument contains was continuously transfused and embedded in later copies of it, even up through the nineteenth century.⁵⁶ Similarly are the Persian royal audience scene from Persepolis and its derivatives (Allen 2005).

⁵⁴ For detailed comparison between this Babylonian version and the Behistun Monument, see Seidl 1999a: 110–112. The monument has also been recently discussed in Root 2012: 36.

⁵⁵ Cf. Kent 1953: 132, 4.88–92. In a new translation of the Old Persian version of the DB Inscription, Schmitt corrected Kent's translation—"this is the *inscription* (italics mine), which I made"—into: "this (is) *the form of writing* which I have made" (Schmitt 1991:73–74, IV 88–92). The new translation seems to refer to the OP script rather than the Behistun inscription. But the following sentence—"both on clay tablets and on parchment it has been placed" (ibid.)—offers a context that Darius may refer to the DB inscription instead, for OP inscriptions were not intended to be written on parchment.

⁵⁶ We have examples of the Behistun relief being copied in the nineteenth century on glazed tiles from Kermanshah (Curtis and Tallis 2005: 255, fig. 73) and a pile carpet from Kerman (at the Museum of Oriental Art in Moscow), each bearing explanatory inscriptions to give the relevant historical information. The tiles bear Persian inscriptions in several medallions, each serving as a caption. It gives the name of Darius. Instead of writing down the name of each captive, it simply identifies that the figures lined up by a rope are the captives of Darius. The inscription also identifies Behistun as the source of the image. The carpet in Moscow is accompanied by modern Persian and corrupted Old Persian cuneiform inscriptions. A series of medallions around the edge of the carpet contain a modern Persian version of the Behistun inscription. The inscription gives the names of each figure portrayed. I am thankful to Mehrmoush Soroush at the Institute for the Study of the Ancient World, New York University, for helping me read the Persian inscriptions and to Matthew Stolper at the Oriental Institute at Chicago for the Old Persian inscription.

That said, an image depicting a real warfare, once created, could eventually become a generic motif through copying and other means of transmission. In other words, a “generic” scene could also be originally associated with a specific event. The practice of copying raises the question of whether a warfare image represents *histoire ancienne* or *histoire récente*, or respectively, an event that occurred a long time ago within the discourse of history or recently during the lifetimes of the participants. The distinction is contingent on the audience. For example, the Behistun Monument, and its subset at Babylon, for Darius and his contemporaries are *histoire récente*; but for those who reproduced the inscriptions and the relief—whether the people who lived in garrison at Elephantine in Upper Egypt and recopied the inscription during the late fifth century B.C., when Egypt was constituted part of the Achaemenid Empire, or those people of Iran who copied the relief during the nineteenth century—it is *histoire ancienne*. For a modern audience, it would be impossible to know whether a warfare scene represents a record of the past or commemorates the achievement of the present. Nevertheless, representations like the Behistun relief, whose primary function was presumably to transmit the royal rhetoric to as broad an audience as possible, are more subjected to—often per official mandate (Seidl 1999a: 113)—replication than ones like the Oxus seal, whose main focus is a non-royal, and most likely, real and specific individual (cf. Section IV). Consequently, if a warfare image involves a Persian king, it has more potential to present a *histoire ancienne*, or a record of the past achievement of a king; conversely, if the main character is a non-royal individual, there is a better chance that the image celebrates a *histoire récente*, or the present achievement of the person being portrayed. In other words, a warfare image depicting the victory of a non-royal individual (such as the Oxus Seal) can be more or less contemporaneous to the event it represents, and subsequently more useful for reconstructing the history of the Achaemenid empire. An examination of the social context within which the images were produced and consumed further supports this assumption (for details, see Section IV).

From “Historic” to “Generic”

While some Achaemenid warfare scenes still kept their historical information when their images were transmitted from one medium to another, others may have lost their original reference and became generic motifs.

The warfare scene on the Munich beam and similar images on other media are examples for the different stages of such process (Pl. 3. b). The beam depicts a military clash between an Achaemenid army led by the Persian king and a regiment from Central Asia. The latter represents possibly the Sakā Tigraxaudā or “the Sakas who wear pointed hats,” as identified by their peculiar pointed caps (see note 14). The scene displays a large additive composition, organized around a passage that shows a Persian king locked in combat with a Saka warrior; between the two combatants is the figure of a fallen Saka. Arrayed in the battlefield are cavalry, infantry, and chariots involved in the battle. Calmeyer (1993: 14–15) has suggested, on the basis of the known written sources documenting military conflicts between Persians and Scythians during Darius’s reign and the lack of such accounts in the later period, that the battle scene refers to the campaign of Darius I against the Scythians. This assertion could be problematic. It demonstrates again the privileged role of textual sources in studying history. If we examine the image itself, on the one hand, the large scale and complicated composition indicate that the painting probably do refer to a particular campaign; but on the other hand, the representation displays a rather crude execution, containing many details misinterpreted by the artist (Summerer 2007a: 131–134). In comparison to most of the seals representing battles between Persians and Central Asian peoples (among them the Oxus Seal), the depiction of the contestants on the beam lacks precision: although the pointy headgear and tight, patterned trousers make the Sakas generally identifiable, there is no effort to clarify the specific ethnic identity of the warriors who constitute the Persian regime, except for that they wear the so-called Median dress, which is a generic form often associated roughly by scholars with the “Orientals.” The scene on the Munich beam is thus more likely a generic motif, and, as Summerer (2007a: 3) has suggested, “bears no clear indications to connect it with a specific historical event.”⁵⁷

The middle passage of the Munich beam resembles closely one on a small chalcedony cylinder seal from the British Museum (BM 132505) (Pl. 10. b), except that the latter is much more elaborately executed. The

⁵⁷ Michael Roaf (pers. comm.) disagrees with Summerer. He proposes that the beam painting probably do refer to a particular campaign on the basis that “the fact that similar or identical images were used does not mean that a particular event was being referred to, but rather demonstrates our own lack of knowledge. Similarly the fact that there is nothing that appears to us specific in an image does not mean that the carver of the seal (artist) or the owner did not think that it was illustrating a particular event.”

image on the seal captures the moment when a battle is about to be over: on the one hand, the Persian hero is still locked in combat and is dangerously threatened by his opponent who grasps his arm and is about to raise a battle-ax; on the other hand, the fallen figure or the corpse of a vanquished Saka on the ground and a captive from another Central Asian group (possibly a Bactrian) point to the anticipated victory of the Persian warrior. Despite its minute scale, each figure on the seal was rendered with accurate details—we can even discern the buttons of the tunics that the Saka warriors wear. The precise rendition of the ethnic identity of the battle opponents and the narrative quality of the image make it likely that the combat scene on BM 132505 could have depict an actual historical event rather than a generic motif. We cannot know, however, the level of the specificity embedded in the image: was it a depiction of the Saka war fought by Darius in 520/519 B.C. and documented at Behistun, was it an victorious incident that occurred during Darius's less-than-successful campaign against the Scythians in presumably 514/513 B.C., as mentioned by Herodotus (IV: 83–144), or was it some event or moment completely missing from written documentation?⁵⁸ Again, the specific information that would identify the event lies outside of the pictorial surface.

That said, one visual passage on BM 132505, showing a leaping lion resting its front legs on the knees of the fallen Saka, nevertheless suggests that the representation on the seal was probably a copy or derivative of some unknown source: the animal is mysterious and apparently out of place on a battlefield. The out-of-context creature could have been added to mystify the event or used as a separate component—as some metaphoric or symbolic marker, just like the palm tree next to it. The extremely fine carving and the palm tree, which is a motif often associated with people of high-ranking status in the Achaemenid bureaucratic system (Dusinberre 2003: 163), indicate that the seal was created for an elite member of the society and perhaps in a workshop near the Persian court. The resemblance between the combat scenes on BM 132505 and on the Munich beam may suggest that the two were derived from one common source. Another similar scene, on a cylinder seal preserved through its impressions on uninscribed tablets and clay bullae from Persepolis (Rahimifar 2005: pl. 17,

⁵⁸ For Darius's description of the incident on in the Behistun inscriptions (DB V: 20–30), see Kent 1953: 134, §74. For Schmitt's translation, which is slightly different, see Schmitt 1991: 76, §74.

18; my Pl. 10. c), though lacking the vanquished figure on the ground, hints that there might be an Ur-monument for the image around Persepolis that commemorates a historically specific event.

If the precision of the image on BM 132505 intends to preserve the historical information embedded in the representation, the Munich beam painting could be an example of how a historically specific scene was transformed into a generic motif and lost its original referent when removed from its original cultural-historical context or when the markers used to identify the participants were obscured or generalized. The beam image was created in Anatolia, where Greek cultural concepts and influence prevailed. The desistence of non-Persian concepts and cultural influence in Anatolia can make the interpretation of the battle images produced in that region ambiguous. For example, within the Greek context, as demonstrated by the numerous warfare images on the Attic vases created after the 460s B.C., a seemingly contemporary combat actually often illustrates the Greek heroic past or epic scenes rather than real historical events (Ivanchik 2005: 101; Miller 2003: 33–34).⁵⁹ Within this context, a human combat scene, as exemplified by a stamp seal from Bolsena (Italy), could be differently interpreted. Found in a burial at Bolsena, the seal was probably carved in Anatolia.⁶⁰ It depicts a horseman in an Anatolian sub-type of the Persian battle attire fighting against a naked Greek hoplite (Pl. 6. c). If we interpret the nakedness as an ethnic marker of the Greeks, the seal could be structurally and functionally comparable to the other Achaemenid warfare images

⁵⁹ Even further detached from historical reality are some Attic vase paintings that show characters representing the Greek epic archer Paris dressing in Scythian costume (Ivanchik 2005: 101–02, 113).

⁶⁰ Boardman attributed this seal to the hand of a Greek artist despite that the Greek soldier was “awkwardly dressed, although it seems with conventional equipment” (Boardman 1970: 314; Boardman 2000: 173, fig. 5.46). The artist’s incorrect interpretation of the garment of the Greek figure may indicate that he was not familiar with the Greeks and thus was not himself a Greek but someone from Anatolia, who seems to be familiar with the Anatolian sub-style of the Persian armors (for this type of armor, also see the relief on the Çan sarcophagus mentioned above). The representation appears to be a battle duel, with both sides threatened by the spears of their opponents. A more careful reading of the scene suggests, however, that the Persian horseman actually has the upper hand: his spear has already reached the neck of his Greek opponent, whereas the latter has not yet thrust his spear forward. This delayed motion of the Greek contestant, which anticipates his defeat, further suggests that the stamp was carved perhaps not for a Greek patron but some Persian-related figure in Anatolia, since it would be less likely for a Greek to commission an image showing his side being defeated.

and represent a historical narrative. The problem is: the nakedness could also be a reflection of the typical Greek concept of “heroic nudity” (Villing 2005: 239), in which case the seal image would be simply a motif. The ambiguous meaning of such scenes makes them unreliable as evidence for any historical reconstruction. To ensure that our evidence reflects indeed a Persian concept, I propose that the warfare images created under the Greek sphere of influences—whether in Greece or in Anatolia and its environs—should be excluded as sources for reconstructing actual historical events, although they could be viewed as manifestations of the historical awareness of the local people who lived in the provinces of the Achaemenid Empire and thus utilized for studying from the ideological point of view the imperial relations.

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Given that a warfare representation could be both historical and generic, we must always take into consideration the various factors that may effect our interpretations. Given various ambiguities involved, I suggest that we read the warfare scenes as a sliding scale: the more detailed and unique the scene, the more likely that it projects a historical event rather than representing a generic motif; the more accurate and specific the identification of the participants, the higher level of historical specificity the representation was **intended** to project. The images created in the center of the empire are more likely to represent Persian cultural concepts. Likewise, those created in the court workshops in Persia are more likely to be the first iteration and subsequently more reliable reflections of Achaemenid history than those produced in provincial workshops. Conversely, the further the representation is detached from its original cultural and/or historical context, the more likely it is generic. The battle images produced outside the core of the empire, such as in Anatolia with its Greek-infused culture, would be less reliable as historical sources than those produced at Persepolis.

Section III. Warfare Images: A Systematic Assessment

With the above parameters in mind, we can now evaluate systematically the corpus of Achaemenid warfare scenes. I will first discuss the different styles, modes of representation, and the media of the warfare images, all

of which would affect our interpretations, and then offer an analysis of the distribution of three groups of warfare images defined according to the ethno-geographic origins of the enemies of the empire, i.e., the Greeks, the Egyptians, and the peoples of Central Asia and the steppe. The section ends with remarks on the historical implications of this distribution.

“Court Style” versus “Persianized Styles”

Warfare scenes of the “Court Style” are usually found on cylinder seals.⁶¹ A number of cylinders preserved on clay bullae or tablets from the Persepolis Treasury, such as PTS 28, 29, and 30, are typical examples of “Court Style” seals (Pls. 5. a, 6. a, 11. a). These images were executed with superb skill; the figures were finely carved and usually highly modeled, with carefully masked drill holes and soft contours representing the drooping upper garments of the victorious figures and the rounded buttocks of the defeated. Warfare scenes executed in the Persianized style are found on both cylinder and stamp seals. For examples we may observe a cylinder seal image preserved on sealings from Daskyleion and a circular stamp that was impressed on two clay tablets from the Nippur Murašû Archive. The former foregrounds the figure of a Persian king slaughtering a Greek hoplite and trampling the corpse of another Greek, and the latter, belonging to Iltammeš-barakku, carries a Persian king slaughtering a Greek hoplite while stepping on the corpse of another Greek (Legrain 1925: 995; Bregstein 1993: 581, seal 184; my Pl. 6. d). The Persianized style is usually associated with images belonging to the Persian artistic koiné. Unlike the Court Style, which was produced in the court sphere and bears significantly unified stylistic traits, the Persianized style has a much broader geographic distribution and displays much more stylistic variance. This variance signifies the cultural distance away from the empire’s center. Objects executed in the Persianized style thus do not necessarily reflect the Persian perspective and are less reliable than those ones executed in Court Style for reconstructing the Achaemenid history.

⁶¹ The warfare image inlaid on the pendant of an unfortunately unprovenanced gold torque at the Miho Museum (Japan) provides, in addition to the seals, another example that was likely executed in an Achaemenid court sphere and reflect a characteristic Persian mode of representation. The pendant could be dated to the fifth century on a stylistic basis. For more details, see note 63.

Iconic Mode versus Narrative Mode

The Achaemenid warfare scenes use two representational modes: an iconic mode for the aftermath of a battle and a narrative one for the ongoing action. The aftermath scenes are highly standardized, often consisting of a hero leading a file of enemies (Pls. 6. a, 7, 9. b); the representations showing ongoing actions have many more variations in iconography and capture a broad range of the various phases of warfare. For example, one cylinder seal, PTS 29, preserved through its impressions on clay bullae from the Persepolis Treasury and dated to ca. 467/466 B.C.,⁶² represents a battle duel (Pl. 11. a). The image shows a warrior wearing a vest—typical Persian battle attire⁶³—and throwing a spear at his Central Asian enemy while the latter, in turn, aims at him and shoots an arrow. The result of the

⁶² The date of PTS 29 is based on its co-existence with two other seals—PTS 5 and PTS 8—which bear the name of Xerxes (486–465 B.C.) and were impressed on dated tablets. For details about the dating of PTS 29, see Wu 2010: 561–562, note 20. I would like to point out that in my 2010 publication, I mistakenly wrote that the seal was first impressed on a tablet dated to 467 B.C. In fact, PTS 29 was found only on bullae (Schmidt 1957a: 29). The earliest attestations of the two dated seals coexisting with PTS 29, namely, PTS 5 and PTS 8, are on clay tablets of, respectively, 467 B.C. and 466 B.C. (Cameron 1948: 56). There is a possibility that these two seals, and contingently PTS 29, could have been carved in the early years of Xerxes, but this is not very likely since all the tablets bearing impressions of PTS 5 and PTS 8 are dated to the end of Xerxes's reign (PTS 5 was used even later).

⁶³ The victorious figure on the right could be a person from Central Asia. This is suggested by a triangular flap below his Persian vest, which seems to represent the lower extension of a cut-away coat. He might be fighting on the Persian side against another Central Asian group (for a more detailed discussion, see Wu 2005: 65–66).

Similar is the much larger scene on the pendant of the Miho torque. The pendant could be dated to the fifth century on a stylistic basis. The representation on the torque shows a military clash between two Central Asian groups. The warriors on the victorious side, consisting of both infantry and cavalry, wear typical Persian battle helmets and vests and can therefore be associated with the Achaemenid imperial power. The cutaway-front tunics underneath their vests, however, betray that they were perhaps also people of Central Asian origin. The vanquished, escaping on horseback away from the battlefield, wear loose trousers and cutaway-front tunics and also appear to be peoples living in Central Asia. In other words, the scene on the pendant, like that on PTS 29, gives clear indication that the combatants on both sides had probably come from the same general area in Central Asia, each representing a different political force. The specificity of the image suggests that the image represents an actual historical event. The superb workmanship and the inlay technique of the torque are comparable to the Court Style inlaid gold jewelry found from a rich burial at Susa (Bernard and Inagaki 2002: 208–209; Harper 1992: 242–52) and from a hoard at Pasargadae (Stronach 1978: 168–77), suggesting that the torque was probably crafted in a royal workshop in the Persian heartland for some Achaemenid elite. The

contest may seem to be undetermined: the spear of the warrior in Persian battle vest has not yet reached the body of his antagonist, while the latter has already pulled his bow taut and is ready to release an arrow. The anticipated victory of the person on the Persian side is signaled by the corpse on the ground and by the higher position of the Persian's head—placed closer to the seal's upper edge. Another battle seal, PTS 30, dated to 470/469 B.C. and impressed on two dated tablets from the Persepolis Treasury (Cameron 1948: 57, 134–135, 137; Schmidt 1957: 30), shows a combat between a figure in Persian armor and one in Central Asian garment (Pl. 5. a). The depiction captures the very moment when the Persian antagonist is about to thrust his spear into the body of his opponent while the latter has only just raised his battle-ax to defend himself. The fate of the latter is not represented explicitly but rather suggested by the person's delayed motion—his weapon is still well behind his head when his opponent's spear has already reached his body—and the untenanted battle steed behind him. A third battle narrative is found on a seal that belonged to Minû-ana-Bēl-dānu, son of Taḥḥua, preserved on two clay tablets from Nippur and dated respectively to 418 B.C. and 414 B.C. (Pl. 11. b).⁶⁴ The image details the figure of a Persian king thrusting a dagger into a kneeling captive wearing a Central Asian garment. The latter grasps the arm of his Persian antagonist with one hand and holds a bow in his other. Standing behind him are his two comrades who were already subjugated by the Persian hero, as suggested by their bound arms behind the back. The image represents clearly a later stage in a military incident—the final struggle of a Central Asian cadre. Yet another battle duel, on the seal of Aršama, exhibits explicitly the triumph of an Achaemenid hero over his Central Asian opponents, who are either Sogdians or Sakas (Pl. 4. a-b). The end of a battle is announced through such visual passages as the horses with trapping but no riders, the corpses of the defeated Central Asian enemies lying on the ground, the falling bow floating in the air, and the suppliant gesture

object, serving as an agent of the Achaemenid elite, must have reflected from the elite perspective the historical awareness of the Persians.

⁶⁴ The two tablets are, respectively, CBS 5144 (publication no. BE 10 101) dated to the 5th year of Darius II (418 B.C.) and CBS 1594, dated to the 9th year of Darius II (24 March 414 B.C.). CBS 5144 belonged to the so-called Murašû Archive; CBS 1594 is prosopographically connected to the Murašû texts. The name Minû-ana-Bēl-dānu appears also on PBS 2/1 207 (10/VI/5 Darius II). (Clay 1904: 101; Bregstein 1993: 586, no. 189; Stolper 2001: 103–11).

of the Central Asian warrior. Finally, on the seal of Ribat, son of Šamašaja, a cylinder impressed on three clay tablets dated to 429–418 B.C. in the Murašû Archive,⁶⁵ is a file of four human figures (Pl. 12). The two on the right are captives from Central Asia. They are driven from behind by a horseman wearing Persian military attire. The latter is, in turn, followed by a person garbed in a Persian court robe. The seal depicts the transportation of captives after a battle concluded. The examples listed above each capture a specific battlefield moment: each scene is unique and specific and thus more likely to represent a historical event than those ones illustrated in the iconic mode.

Full Narrative versus Abbreviation and Cylinder versus Stamp Seals

As exemplified by the Behistun relief and its reduced version from Babylon (Pl. 2), the iconography of warfare is sometimes fully represented and sometimes highly abbreviated. The battle narratives on the Oxus seal and the Munich beam display incidents in a more substantial manner than most of the other warfare depictions. In contrast to these examples, some of the warfare images were heavily abbreviated and compressed onto a small image field, such as the surface of a stamp seal (e.g. Pl. 6d). During this process, the original image would eventually lose its specificity and uniqueness, and transform into a visual motif. This is like summarizing a narrative text: while it is requisite to retain the text's main message, one can reduce or even eliminate the majority of details, leaving only the most essential points and expressing them in the form of one or a series of statements or one slogan. In the visual domain, a coin depicting a royal figure holding a spear or bow (as those of the Achaemenid gold daric and silver sigloi) is, in a sense, a visual slogan that states victory and consequently power of the king. If this argument is acceptable, warfare scenes on stamps, which usually provide much-limited image fields and carry more abbreviated representations than cylinders, are less likely to be historical in comparison to those on cylinders.

Warfare against Greeks, Egyptians, and Central Asians: Three Groups

For reasons that will become clear in the following pages, this article divides the warfare images into three groups according to the ethnic/geographic origins of the defeated. Here I give priority to ethnic/geographic

⁶⁵ For dating of Ribat's seal, see note 23.

origins as the most important grouping criterion because ethnicity was among the most important concerns of the Persians⁶⁶—the Achaemenid imperial art carefully portrays and distinguishes peoples of the different ethnicities through their physiognomies, hairstyles and clothing, and sometimes weapons; often times, an added written label makes the ethnicity of the figure being depicted even clearer (Roaf 2005: 311). This intensive attention to ethnicity is not limited to describing the overall constituency of the empire, but also extends onto individual identity.⁶⁷ The specificity of ethnic definition and diversity of the enemies on the warfare seals thus must have been meaningful to the Persians.⁶⁸ The limitation of enemies to only three groups—the Greeks, Egyptians, and people of Central Asia and the steppe—thus demands historical explanations and must be historically significant.

Group I: Greeks. The first and biggest group, which constitutes the majority of the warfare images of the Achaemenid period, comprises depictions of conflicts between the Greeks and the Persians. Among the 64 seals documented by Tuplin, at least 35 (and possibly 37) examples rendered on both cylinder and stamp seals belong to this group, as well as on a number of funerary monuments (Pls. 3. a, 6).⁶⁹ This group is iconographically diverse; the representations range from the Court Style to the various Persianized styles. These seals are found both inside and outside of the empire, from Iran, Mesopotamia, and especially Anatolia, and as far as Etruria in Italy.⁷⁰ The group also includes numerous unprovenanced

⁶⁶ Both royal inscriptions and official art enumerate repeatedly the people of different ethnicities encompassed in the empire. These listings and depictions, serving as the verbal and visual descriptions of the imperial territory, have formed the essential components of the Achaemenid inscriptions and monumental art (Roaf 1974; Root 1979).

⁶⁷ In royal inscriptions and sometimes also administrative texts, the ethnicity of an individual is also explicitly specified. For example, in the Behistun inscriptions, each of the rebellious kings and allies of Darius is described with their ethnic affiliation, on which see for example Kent 1953: 116–135. The Achaemenid awareness and recognition of ethnicities are also well attested in administrative texts from, for example, Persepolis (Henkelman and Stolper 2009) and Egypt (Porten 1996: 18, 74).

⁶⁸ The images may, as John Ma has proposed (2008: 5), have an ideological function, as a way to construct the “other” and “make visible the extent of Persian power.”

⁶⁹ I am deeply indebted to Christopher Tuplin for sharing with me his statistics and unpublished notes related to the warfare seals.

⁷⁰ For examples from Persepolis, see Schmidt 1957: pl. 9, PTS 28; Rahimifar 2005: pl. 17 (identical with PTS 28), 18; from Nippur, see Bregstein 1993: 581–585; 587; from

examples.⁷¹ Added to the seal images of this group is the relief on the Çan sarcophagus.

Among the better-known examples of this group is a cylinder seal (PTS 28) preserved through impressions on clay bullae from the Persepolis Treasury. The seal shows a hero in Persian-Elamite court dress spearing a kneeling Greek enemy while leading a file of Greek captives (Pl. 6. a). The fine, highly modeled figures possess typical features of the Court Style. The seal was used at Persepolis and was likely to have been carved in a court workshop near the site. Similarly depicting the consequence of a battle, a cylinder seal impressed on clay bullae from Seyitömer in Anatolia represents a different carving style (Pl. 13. a). It depicts a naked figure in a Greek helmet being seized by two warriors, one in a Persian court robe and the other in a riding outfit. The nakedness of the Greek figure, which is commonplace in Greek art but unfamiliar in Persian art, suggests that despite carrying “distinctive Persian elements” (Kaptan 2008: 656, 660, figs. 1–2), its stylistic resemblance to the western Achaemenid koiné seals (Kaptan 2010: 367) indicates that the Seyitömer seal could well have been produced outside the Persian core region.

In general, aside from a very small number of seals, representations of this group were executed in various styles that demonstrate Persian cultural influences rather than proving a Persian provenance. One cylinder, impressed on clay sealings from Daskyleion and showing a Persian horseman fighting against a Greek hoplite, is an example of the Persianized style (Pl. 6. b). Lacking clear details, the image is highly abstract and differs significantly from those well-executed and more detailed examples in the Court Style. Most of the provenanced examples belonging to this group were preserved on bullae from Anatolia and were likely produced in the area (Kaptan 2002: 2–4). We could also attribute, on stylistic grounds, some warfare images found elsewhere to Anatolia, among which are the seal of Iltammeš-barakku from the Murašû Archive and the abovementioned stamp from Bolsena (Pl. 6. c, d). The Iltammeš-barakku seal exhibits stylistic traits similar to those so-called (albeit ill-termed) Graeco-Persian seals from Sardis.⁷²

Daskyleion and other sites in Anatolia, see Kaptan 2002: 207, figs. 257–98; from Italy, see Boardman 2000: 173, fig. 5.46.

⁷¹ For unprovenanced examples, see for example Curtis and Tallis 2005: 230–31, cat. nos. 422, 423; Francfort 1975: 220, Fig. 1.

⁷² The term “Graeco-Persian” describes an artistic style that has generally been considered as associated with Asian Minor. It carries a lot of baggage and is increasingly

It provides, like most of the examples from Asia Minor (Kaptan 2010: 367), another example of a generic motif derived from perhaps the warfare images originated in Persia. If we exclude the warfare images from or attributed to Anatolia and those depicted on stamps from the examples that potentially represent actual historical events, the number of depictions of the Graeco-Persian wars become in fact surprisingly small.

Group II: Egyptians. The second and smallest subset includes a blue chalcedony cylinder seal at the Pushkin Museum of Fine Arts in Moscow and a very similar one at the State Hermitage Museum in St. Petersburg (Pl. 7). A third example, almost identical to the St. Petersburg seal, is currently housed in the Metropolitan Museum of Art in New York.⁷³ The seal in St. Petersburg portrays the image of an Achaemenid king or a Persian hero slaying a pharaonic figure while leading a file of Egyptian captives, with a palm tree nearby (Pl. 7. b). The Moscow seal shows only the image of a Persian king leading a file of captives and of a palm tree (Pl. 7. a). The examples are remarkably close in iconography, composition, and stylistic details such as the usage of small drilled holes to indicate the texture of the clothes and palm fruits. The extremely high degree of resemblance of these seals implies that they were carved either based on a common model or in the same workshop, or perhaps copied from each another.⁷⁴ Certain details of the Moscow seal indicate that this cylinder, despite being more widely

subject to criticism. For a systematic review of the historiography on the term, see Gates 2002.

⁷³ I am thankful to Dr. Joan Aruz, curator of the Ancient Near Eastern Department, for allowing me to study this seal. For photo and general information of the seal (museum accession number: 1999.325.114), see <http://www.metmuseum.org/Collections/search-the-collections/327710> (accessed October 9, 2013).

⁷⁴ These seals entered the collections when we knew yet little about Achaemenid art, well before Persepolis was excavated in 1930s. Without knowing their provenance, there is of course always a possibility that the pieces are forgeries. That said, the pieces are likely to be genuine. The details of the seal image seem to be correct when compared to the similar visual passages on seals preserved through impressions at Persepolis. The seal at the Pushkin Museum of Fine Arts (formerly named as National Museum of Fine Arts) was acquired in 1924 or 1925 (Chileyko 1925: 17). In publications it was sometimes illustrated incorrectly as two separate examples (Dandamaev 1976: tafs. V and XIV). The St. Petersburg seal belonged to Counselor M. A. de Zwenigorodoskoy in St. Petersburg in 1885 before its acquisition by the State Hermitage Museum (Menant 1885: 168 fig. 147 and pl. IX). Like the Moscow seal, this seal is also illustrated inconsistently, sometimes being treated as two different examples (e.g., Briant 2002: 215, figs. 18a, b).

cited in historical and art historical literature than the St. Petersburg seal because the former bears an inscription, could in fact represent an abbreviated version or a later derivation of the scenes carved on the St. Petersburg seal or an Ur-monument behind both of them. These details include a large triangular object under the quiver, which could be mistaken for the opened cover of a quiver that was otherwise well articulated on the St. Petersburg seal, and a small fork-shaped object on the tip of the triangular object, which may have been a misinterpretation of a tassel hanging down from the quiver.⁷⁵ Moreover, on the Moscow seal, the Persian hero carries a bow that is disproportionately large, suggesting again that the seal cutter perhaps did not understand the actual structure of Persian bows; and the proportion of human figures and the facial details are notably less masterful—the figure of the Persian hero is markedly clumsier—than those on the other two examples in this group. All these details suggest that the Moscow seal was probably carved at a later date or copied from another source by a craftsman who lived outside the Persian cultural sphere.

Regardless of whether the Moscow seal was copied from a model such as the St. Petersburg seal, or all three examples of this group were derived from one original monument no longer exist, for instance, an official monument that represents the victory of the Persian king over the Egyptians, the seal cutter's effort in adhering faithfully to the original design indicates that the image, like the Behistun relief, may have contained some important historical information, possibly related to the victory in a specific battle against the Egyptians. If this was indeed the case, the images on all the seals in this group could then represent one single historical event.

Group III: Peoples of Central Asia and the steppe. The third group comprises numerous seals with depictions of warfare between Persians/Achaemenids and people of Central Asia or the Eurasian steppe. At least 18 (16 cylinders and 2 stamps) such representations are preserved;⁷⁶

⁷⁵ For a proper representation of the tassel on a quiver, see Curtis 2005: 71, cat. 27.

⁷⁶ Of the sixteen cylinder seals, ten are preserved through their impressions on clay bullae or tablets and six are actual seals. Those preserved on tablets include: at least two examples on tablets and bullae from the Persepolis Fortification Archive (one being impressed on PF-NN 1478, my Pl. 14. b.), three (PTS 29, 30, 31) on tablets and bullae from the Persepolis Treasury (Schmidt 1957: Pl. 29, my Pls. 5. a, 11. a), one on bullae from inside of a fortification tower at Persepolis (Rahimifar 2005: 10, Pls. 16) (according

another three are on decorations of other media.⁷⁷ Of the stamp seals, one is preserved on clay sealings from Daskyleion (Kaptan 2002: I: 151–153) and the other one, very similar the Daskyleion example, is allegedly from Anatolia (Boardman 1970: 882, 883; my Pl. 13. b, c). The images on the stamp seals are both executed in an Anatolian type of Persianized style; they are so close to each other that they most likely represent a popular seal motif in Anatolia. Of the other examples, the scene on the Munich beam (Pl. 3. b), as highlighted by Summerer (2007a: 3), is also a generic scene. So too appears to be a gold band from the collection of the Russian Tsar Peter I, which was acquired allegedly in Siberia in the eighteenth century and is currently housed in the State Hermitage Museum in St. Petersburg. The band was originally fixed onto some other object such

to Rahimifar, these bullae were among the 60 examples and some fragments found by Akbar Tadjvidi at Persepolis in 1971–70. In a publication by Tadjvidi himself in 1970, the excavator mentioned about the discovery of 52 clay bullae nearby a pottery vase in a corridor at the bottom of a staircase inside a fortification tower at Persepolis. Among these 52 bullae, there is one seal impression that shows a combat between a Persian and a Scythian contestant (Tadjvidi in Goff et al. 1970: 187). An anonymous reader of this article has kindly pointed out that these two publications refer to the same corpora, two (one belonging to Ribat, son of Šamašaja, and the other Minû-ana-Bêl-dānu, son of Taḥḥua, the “inspector”, on tablets from the Murašû Archive and elsewhere from Nippur (Bregstein 1993: 591, cat. 189, 194; Hilprecht 1898: 107; Clay 1912: 130; Stolper 2001: 105; my Pls. 11. b, 12), one used as heirloom and impressed on clay bullae dating to the Parthian period from Artachate in Armenia (Khachatrian 1993: pl. 73, fig. 5-4, 5; Santrot 1996: pl. 222, n. 210a-1; my Pl. 9. b), one (seal of Aršama) on clay sealings allegedly from Egypt, currently in the Bodleian Library at Oxford (Driver 1957:10; Dandamaev 1989: 382, my Pl. 4. a-b); one on two uninscribed bullae possibly from Telloh and currently housed in the Dutch Institute and the Louvre Museum (Arta 2004_AO 29963 side 1_001, Arta 2004.001_LB 894 side 2, my Pl. 9. c).

The six actual cylinder seals known to me include: three from the British Museum (the Oxus Seal, BM 132505 and BM 129569, for reference of the third one, see Curtis and Tallis 2005: 228–229, cat. 414), one in the Bibliothèque Nationale in Paris (Delaporte 1910: 224 pl. XXVIII, 403; Ward 1910: 328), one in the collection of Edward T. Newell (von der Osten 1934: pl. XXXI/453; Schmitt 1981: 34; Stolper 2001: 108–109), and one in the Foroughi Collection in Tehran (Porada 1979: 83, fig. 45).

The two stamp seals include one that is preserved on clay sealings from Daskyleion (Kaptan 2002: 12, 27) and one actual stamp of scaraboid type in St. Petersburg, Russia, which is said to have come from Asian Minor (Boardman 1970: 882).

⁷⁷ Images of this group are also found on the pendant of an unfortunately unprovenanced gold torque in the Miho Museum (Japan) (for a detailed description of the pendant, see note 62. Also see Arnold 1996:19), on a circular gold object that belonged to the collection of Russian Tzar Peter the Great (currently in the St. Hermitage Museum), and on the painted wooden beam in Munich (Summerer 2007a; 2007b).

as a wooden pole or shaft of a battle-ax. It carries a cramped composition depicting five warriors on horseback. All proceeding to the left, the horseman in the middle plunges forward a spear; he is followed by an antagonist who raises a battle-ax to the air and another one who pulls his bow taut. Before him next to the first two riders on the left are two horses, each carrying a fallen human body along its side (Pl. 14. a). The representation has been originally interpreted as a procession of soldiers returning from war with the bodies of their two comrades (Rudenko 1962: 29, 50, Pl. XXII 18). The actions of the three cavalry on the right suggest that rather than portraying a post-war procession, the depiction shows actually an on-going incident. The victors wear the typical Persian round helmet and vests, suggesting that they are affiliated with the Achaemenids. Nevertheless, their leggings, which were typical worn by the nomads of Central Asian steppe (Wu 2007: 139–141, Polos'mak 2001: figs. 90–91), betray the warriors' Central Asian origin. The identity of the vanquished is difficult to be determined due to the lack of clear markers; they seem to be some nomads from the Central Asian steppe as well. The coarse engraving style and unrefined craftsmanship of the band remove the object from the imperial court and suggest that it was most likely produced in a local workshop somewhere in Central Asia or by a craftsman on the steppe. The band, along with the two stamps and the Munich beam, should be excluded from the corpus that represents specific historical events.

In contrast to those in Group I, the contestants of the warfare scenes in Group III are, in general, rendered with more precision and specificity; they are more consistent with the figures depicted on the Achaemenid official art. All but two of the representations of the Group III seals are cylinders. The carving style of the Group III seals is also much more consistent than those in Group I. Some seal images, such as PTS 30 and an unfortunately unprovenanced chalcedony cylinder seal at the Bibliothèque Nationale that shows two pairs of Persian and Central Asian warriors fighting against each other (Delaporte 1910: 224 pl. XXVIII, 403; Ward 1910: 328; my Pls. 4. c, 5. a), are notably similar in stylistic details: the gestures of the pair locked in combat on the Bibliothèque Nationale seal and on PTS 30 are almost identical; the Persian warriors on both seals were rendered with similar physiognomy, all having full faces, heavy eyelids, and long chins, whereas the figures of the Central Asian people all have narrow faces, pointed noses, and narrow chins. The remarkable similarities in style and distinction in composition and iconographic details

suggest that the two seals were not copies of each other but were perhaps carved in the same workshop. Another example related to this stylistic group is the Newell seal, which also represents two pairs of combatants but with a drastically different composition (Pl. 10. a).

The warfare images in Group III, unlike those in Groups I and II, which depict only a limited number of variations of combatants (mostly Persians, and occasionally the allies of the Persians, against Greeks or Egyptians), illustrate people of a wider range of ethno-geographic origins (Persians and their allies against Sogdians, Sakas, Chorasmians, and Bactrians/Parthians). They also display more variations of moments or stages of a conflict-ing incident and its consequences, starting, for example, from when the victory has not yet been determined (Pls. 4. c, 5. a, 11. a), to the final struggles of the defeated (Pls. 10. b, 11. b, 14. b), the supplication by the vanquished (Pls. 4. a–b, 9. a, c), then the final victory on the battlefield (Pls. 9. a, 10. a) and, lastly, the transportation of captives (Pls. 9. b, 12). The representation of distinct action(s) on each seal may point to an attempt to recreate a real battlefield moment in order to reinforce the statements that those incidents had actually occurred and those heroes had indeed participated in the events.

The battle images constituting Group III, apart from the two stamps, the gold band in Peter I's collection, and the Munich beam, are mostly depicted on cylinder seals that were perhaps carved in an environment close to the Persian royal court and would thus reflect a Persian perspective. With one exception, which is a cylinder seal used as an heirloom and preserved through its impression on a number of bullae from the Parthian period site at Artachate in Armenia and featuring a figure in Persian-Elamite court dress leading a file of prisoners of Central Asian origin, the battle images in Group III are all in narrative mode (both sequential and cumulative). Compared to the warfare images in Group I, the representations in Group III are much less abbreviated. The specificity of the participants' identities, the singularity of the moments, and the large variance in the ethnic combinations, as well as the broad range of the disparate battle stages captured on scenes of this group, demonstrate that images of Group III have more likelihood to represent specific historical incidents; whereas most of the examples in Group I represent generic motifs. The seals in Group II may all have been associated with the same single event. In other words, Group III contains more warfare scenes that are more likely to be depictions of actual historic events than those in other two groups.

Historical Implication of the Three Groups of Warfare Scenes

With all the above parameters and their manifestations in each group considered, it is clear that traditional scholarship has put too much reliance on the written accounts when it comes to the history of the Achaemenid Empire. The visual evidence, at the very least, suggests that more caution is needed. While the paucity of written sources makes unequivocal claims about the role of Central Asia as a real military threat to the Achaemenid Empire impossible to make, at the very least the evidence I have presented demands that one re-assess the written sources and consider the possibilities. For example, in the Babylonian version of the Behistun inscription, Darius claims that he had killed 55,243(?) enemies while putting down the revolt at Margiana.⁷⁸ This amount outnumbers remarkably the enemies Darius killed anywhere else during his suppression of the revolts in 522/521 B.C. and speaks for the strong resistance that Darius must have had encountered in Central Asia upon his accession to the throne.⁷⁹ After Behistun, no Persian account mentions any military Campaigns in any specific region, except for one of Xerxes's inscriptions which vaguely mentions the suppression of a "commotion" that occurred somewhere in the empire (Kent 1953: 151, XPh §4a. 28–35; Schmitt 2000: 93, 28–35 [§4a]). Classical sources, which document in great detail the military engagements between the Greeks and the Achaemenid Empire, mention only in a few accounts the political conflicts between the Persian kings and their assumed subjects in Central Asia. These accounts, albeit brief, are linked to the crucial moments of the empire's history. They include, for example, the expedition of Cyrus the Great (r. 559–465 B.C.) against the tribesmen in Central Asia—Massagetaen according to Herodotus (I: 214) or Derbices according to Ctesias (§7–8, cf. Llewellyn-Jones 2010: 173–174)—during which Cyrus might have met his death (Briant 2002: 49–50).⁸⁰ Other accounts document two conflicts between

⁷⁸ Section 31 in the Babylonian version of the DB inscription (von Voigtlander 1978: 58) and 34 in the Aramaic version (Greenfield and Porten 1982: 10, 14); the Old Persian version does not give the precise number of the people being killed. For the Margiana campaign, see paragraph 38 (Kent 1953: 127). For a summary of the different casualty figures, see Briant 2002: 118.

⁷⁹ For more systematic assessment of the battles in Central Asia, see Volgelsang 1992: 126–134.

⁸⁰ For the circumstances surrounding Cyrus's death, see Briant 2002: 49–50. The Central Asian expedition of Cyrus, according to Briant (2002: 49), "attests at least to the difficulties faced by Persian power in maintaining its dominion" in Central Asia.

Xerxes and his brother(s), who was (were) in charge of Bactria, around the time Xerxes gained the throne or during his early reign,⁸¹ and a military clash between Artaxerxes I and the satrap of Bactria, perhaps also a brother of Artaxerxes, when Artaxerxes newly became the king (in 465 B.C.).⁸² These events, despite the little information we have about them, are nevertheless critical for the Achaemenid Empire—they all occurred around the time when power was transferred from one king to another and thus threatened the stability of the empire. Additional accounts on Cyrus's and later also Alexander the Great's bitter struggles in Central Asia and their efforts in establishing forts and garrisons in the region further attest to the strong resistance and the importance of Central Asia.⁸³ Against this backdrop, it is not too far-fetched to propose that Central Asia must have had posed major threats to the Achaemenid Empire; and, I would argue, the visual evidence provides a strong reason for re-evaluating the written sources.

The political clashes documented in the classical accounts are all related to Bactria. Some of the enemy figures in Group III, such as those on the Oxus seal and the captive figure on BM 132505 (Pls. 9. a, 10. b), may illustrate military conflicts mentioned in textual sources, but until we find more certain evidence attesting to their links, we must refrain from too readily matching any visually documented incident to those in written sources. On most of the representations in Group III, the vanquished figures, as judged by their modes of dress and hairstyle, are

⁸¹ Briant 1984: 75–77. The first incident is between Xerxes and his brother Ariaramnes from Bactria who came out against Xerxes to claim his rights as the oldest son of Darius upon the Xerxes's accession (in 486 B.C.) (Justin, *Epitome of the Philippic History of Pompeius Trogus*, II. 10.1–11 and Plutarch, *Moralia*, 173b), and the second, between Xerxes and his brother Masistes, who was probably the satrap of Bactria and had revolted against the king in 479 B.C. after being humiliated by the latter (Herodotus IX: 108–13). Briant (2002: 524) suggests that these two accounts may refer to the same incident, with Justin's and Plutarch's accounts being a corrupted version of Herodotus'.

⁸² The upheaval was led by Artabanus, perhaps Artaxerxes' brother Hystaspes, the then-satrap in Bactria (Briant 2002: 570, citing Diodorus, *Library of History*, XI.69.2). This incident, as Briant suggests (*ibid.*), may have in fact reflected a dynastic struggle within the Persian royal house rather than a political encounter between the Persians and inhabitants of Central Asia.

⁸³ According to classical authors, both Cyrus and Alexander established garrison towns in Central Asia (for forts and garrisons of the Achaemenid period, see Tuplin 1987; 1988). Alexander the Great also experienced bitter struggles in Central Asia, especially in Bactria and Sogdia, when he attempted to conquer the land (Volgelsang 1992: 229–235; Holt 2006).

Sogdian or Saka rather than Bactrian. The repeated appearance of Sogdians and Sakas as the enemies of the empire indicates that the political encounters in the northeast may have gone far beyond the scope of strife within the Persian royal family, or between the Great King and his brothers and royal contenders in Bactria. Some of the visually documented events could have represented what Kuhrt (2007: 182) identifies as the Persian “endeavor to pacify and stabilize” the northeastern frontier. The multiple representations of warfare involving the Sogdians or Sakas could imply repeated conflicts that took place over time, but could also be interpreted as different incidents occurred within the course of one long-lasting war; or possibly, but unlikely, they might be read as one single event that involved antagonists of different ethnic groups and was so severe and significant that it was repeatedly documented, variously interpreted, and long remembered. Or at the very least, for those skeptics who completely reject the possibility that some warfare scenes could have been created based on real historical events in favor of regarding them all as generic motifs, it is not unreasonable to suggest that ideologically, at least, Central Asia was perhaps considered as much as a threat as Greece or Egypt.

Indeed, it is even possible that the Persians and their allies used the images of warfare against the Central Asians as a visual foil to project the latter as an “other,” like a number of scholars argue that the Greeks did to their Persian opponents (cf. Curtis and Tallis 2005: 238 and note 16). In any of these cases, the people of Central Asia and the steppe, living both within and beyond the limit of Achaemenid secure control, were likely to have been conceived as a formidable hostile force that the empire could not ignore. Their challenges to imperial power had a strong ideological or mental impact—if not a strong military one—on the empire.

Sogdians, Sakas, and Achaemenid Imperial Policies

The battle representations in Achaemenid art present a unique opportunity to look into the complex imperial relations of the Persian Empire. Tentative remarks on three sets of relations can be put forward on the basis of comparisons between the different groups of warfare scenes as well as between the battle images on seals and other private media and representations of Central Asians on official monuments.

First, on the relationship between the Sakas and Bactria: some of the Saka tribes must have kept a close relationship or were in alliance with the Bactrians. Herodotus (VII: 64) documented that in Xerxes's army the Bactrians and Sakas were both led by Hystaspes, an Achaemenid royal prince. He commented (IX: 113) on a failed attempt of a revolt against Xerxes by Masistes, brother of the king and possibly satrap of Bactria, saying that Masistes would have accomplished his goal, "if he had once reached the Bactrian and Sakan people; for he was greatly beloved by them both." Regardless of its accuracy regarding the specific event, the account may allude to a general situation in Central Asia, where the rebellious Persian prince could have been allies with both Bactrians and Saka people. On BM 132505, Sakas and another Central Asian warrior, possibly a Bactrian, are both depicted as the opponents subjugated by a Persian king. The image is thus a visual confirmation for the possible alliance between different ethnic groups in Central Asia that the Achaemenid kings had to deal with.

Second, on the relationship between the Sogdians and/or Sakas and the Persians: the above analysis of the battle images suggests that the Sogdians and/or Sakas were heavily involved in Persian imperial affairs and were probably the primary challenging force against the Achaemenid authorities. Evidence from official monuments in Persepolis and its vicinity indicates, however, that from time to time the Sogdians and Sakas might have been allies of the Persian king and were bestowed with special status. On the Apadana reliefs at Persepolis, the Sogdians and Sakas are shown bringing gifts or tribute to the king along with his other subjects. Meanwhile, they were singled out from the rest of the nations by wearing full martial equipment, which could be, as Schmidt (1970: 113–115) has pointed out, an indication of their prestigious status. In addition, among the throne-supporters depicted on the facades of the kings' tombs, on which weapons were apparently not a symbol of honor, as many people wear them, two figures belonging to the Saka groups were still distinguished from their peers by wearing torques, which are another symbol for prestige (*ibid.*).⁸⁴

⁸⁴ One group (No. 14) is labeled by inscription as the Haoma-drinking Saka, who perhaps lived in Central Asia; the other (No. 24) the Saka or Scythian beyond the Sea, which is another nomadic group that probably resided in the Black Sea area (Schmidt 1970: 115). The third figure that wears a torque is the Arabian, who had probably held a special status

Third, as I discuss below, the visual evidence raises intriguing questions both about the political and military relations between the Achaemenid Empire and its neighbors and subjects and about the historiographical and methodological implications of respecting visual and archaeological evidence. Written sources show that during the two hundred years of Achaemenid history, military encounters occurred in many places within and beyond the imperial boundaries: from Thrace in the west to India in the east (Kuhrt 2007: 182–183, 188–189, 209). The visual records, however, document only the conflicts between the Achaemenids and Greeks, Egyptians, and those who lived in Central Asia. Additionally, the revolts in Egypt, which must have occurred repeatedly, as written sources demonstrate,⁸⁵ are documented only sporadically in visual records. Moreover, the political unrest in Mesopotamia and northern Iran, known through both classic and more reliable Babylonian sources (van der Spek 1998; Kuhrt 2007: 248–248, 345, 400), is not seen at all in visual representations. There is admittedly a possibility that such representations do exist but have not been found, making the seemingly contradictions between the textual and visual sources purely coincidental. It could also have been a conscious choice for the Achaemenids to depict military encounters with only some groups but not the others. If the latter were indeed the case, the reasons for it remain elusive. The implications of the unbalanced distribution of the geographic origins of the empire's opponents nevertheless is most likely to have some significance: it could be that violence against certain groups (such as those residing in Central Asia) was treated more explicitly because these groups were particularly troublesome internal enemies—rebels in regions within the imperial boundary, or alternatively, because they were viewed as “foreigners” (or previously unconquered peoples), and thus enemies external to the empire. That said, a distinction between the two is particularly relevant but difficult for Central Asia: while a war against the Saka who moved in and out of the imperial borders would probably be seen by the Achaemenids as “external”, one against a rebellion of Bactrians would certainly be “internal” because the satrapy of Bactria had a special place in the Achaemenid

within the empire during at least Cambyses's reign because they had helped the Persian king's campaign to Egypt (Herodotus III: 4–7, 88; *ibid.*).

⁸⁵ For accounts concerning the revolts in Egypt, see Kuhrt 2007: 182, 248, 319–24, 344, 351–352, 395, 398–399, 409, 413.

imperial structure. The above conclusions, although tentative, encourage us to re-think the methodological questions raised at the outset of this article about what counts as history: history as displayed by written texts being one thing, and history as displayed by art another.

Section IV. Warfare Scenes and Achaemenid Elite Ideology

Social Context and Circulation of Achaemenid Warfare Images

While earlier sections have focused on the content of the images, here I turn to the circumstances in which the images were created and circulated. Considering these circumstances allows me to demonstrate that apart from the iconography, a number of other factors involved in the process of making and using the images (including media, space of circulation, audience, and especially patrons) are also crucial for interpreting and using these images in reconstructing the different aspects of Achaemenid history.

As mentioned earlier, most of the Achaemenid warfare scenes are depicted on small portable objects, mainly seals that belonged to Achaemenid administrative functionaries who are presumably elite member of the society. Among the few warfare seals whose ownership is known to us, PFS 1156, carrying what appears to be a representation of the transportation of captives (cf. Fn. 12), was applied on the left edge of PF 1209 (Garrison and Root 1996: 55). The seal belonged to Šimumu, a wine provider (Hallock 1969: 346). The same name, belonging to most likely the same Šimumu, appears in PF 667 as the supplier of grain as rations for Parnaka, the chief administrator at Persepolis. In PF 556 and an unpublished text, he also functioned as an apportioner.⁸⁶ Neither Šimumu nor any of the other warfare seal owners at Persepolis seems to have had particularly elevated statuses,⁸⁷ although some of them worked closely

⁸⁶ The name of Šimumu is also attested on a few other texts that have not been published. These texts show that his status is not particularly elevated. I am thankful to Christopher Tuplin for his suggestion.

⁸⁷ Among the other heretofore known owners of the warfare seals from the Persepolis Fortification Archive, no one seems to have a particularly high status. For example, one of the seal belonged to a *titikaš*-people (= OP *didaka), “reporter, inspector”. There are numerous texts referring to *titikaš*-people. Most of them seem to be receiving rations for workers, often women workers (including post partum women workers). On PF 1344, three *titikaš*-people each received 0.15 bar of flour, which was the standard ration for skilled workers and some professionals such as elite guides. This makes it unlikely that the

with the administrator of the highest level at the Persepolitan institution. In contrast to the early examples from the Persepolis Fortification Archive, the owners of some later seals with warfare scenes had apparently quite high social status. Aršama, is an example. His other title, “Son of the House,”⁸⁸ designates him as a royal prince (Driver 1954: 6). The satrap had large landholdings in both Babylonia and Egypt.⁸⁹ Another example is Minû-ana-Bēl-dānu, son of Taḥḥua, whose name and seal is attested on three clay tablets from or related to the Murašû Archive (Bregstein 1993: 591; Stolper 2001: 103–106, my Pl. 11b). Minû-ana-Bēl-dānu bears the Babylonian title LÚ.GAL *um-mu* and had a significantly high status at Nippur—he controlled an office supported by land property and associated with a village named for his own estate (Stolper 2001: 106).⁹⁰ In fact, among the seals on the tablets from the Murašû Archive, there are only a small number (17 out of 664) of military scenes, which make them special.⁹¹ And these warfare images are, according to Bregstein (1993: 212; 591), generally associated with people of higher status.⁹² As tools for administrative control, these seals, along with their images, were used on both private and semiofficial levels and circulated in a sphere close to the ruling elite. In addition, warfare images have occasionally been found on personal decorations and funerary monuments.⁹³ There is a strong likelihood that warfare scenes

titikaš—people had any particularly elevated status. We also have the seal of a **didaka* (Akkadian *didakku*) on a Murašû tablet (on BE 10.118, Bregstein 1993, no. 581) that depicts a naked man wrestling a lion. I owe to Christopher Tuplin for some of the information here.

⁸⁸ For discussion on the meaning of the title, see note 24.

⁸⁹ The Murašû Archive records that Aršama kept land and livestock in Babylonia in addition to his estates in Egypt. For relevant documents, see Driver 1957: 88–89; Stolper 1974: 95–96; and Stolper 1985: 16, 23.

⁹⁰ The owners of the seals with warfare images from the Murašû Archive had in general middle to high status. See Bregstein 1993: 207–218 for seal usage at Nippur.

⁹¹ The number is even smaller if we exclude those more debatable examples of Bregstein 1993: nos. 195–199.

⁹² That said, it should be noted that among the figures categorized by Bregstein (1993), there are ten warfare seals belonging to titled people and seven to untitled—or, on the strictest alternative figures, seven and five. As pointed out by Christopher Tuplin (pers. comm.), these numbers constitute only a small portion 4% and 2% of the entire corpus of the titled-owner and untitled-owner seals and thus could not be used for large inferences about social status and image-choice at Nippur in general. But that does not contradict Bregstein’s suggestion, which is derived based on the uniqueness of the iconography, qualities of the craftsmanship, and statuses of the titled-owners.

⁹³ These could be exemplified by the Miho torque, the Çan sarcophagus, and the Munich beam.

were perhaps also depicted as adornments on elite houses or even the palace of the Great King. These particular media suggest that the Achaemenid warfare images had mostly circulated in a limited social sphere close to the ruling class, except for those on the royal monuments set up for public display (e.g., the Behistun Monument or its offset in Babylon).

This is a significant fact: the media on which the warfare scenes were represented, the physical and social sphere within which the images circulated, and especially the strong tendency to represent the heroic deeds of figures without any royal attributes make the Achaemenid warfare scenes fundamentally different from battle and victory images in the art of the ancient Near East prior to the Achaemenid period. For example, during the Neo-Assyrian period, warfare images appear frequently on palace reliefs and public monuments erected by kings,⁹⁴ but rarely on seals (Garrison 2011: 391, note 31) or other non-royal and less-public media. In the Neo-Assyrian context, the warfare reliefs, which were initiated by the Assyrian monarchs, focus both visually and ideologically on the military achievement of the rulers; although soldiers and other individuals also participated in the narrative composition, they serve merely a supporting role or part of the setting in order to make the stories convincing. In contrast, among the Achaemenid warfare scenes, apart from those examples featuring the Persian kings as heroes, the key figures on many representations are non-royal individuals. Furthermore, in comparison to the Achaemenid warfare images, those on the Neo-Assyrian reliefs circulated in a much broader social sphere. Even for the warfare images within the Assyrian palaces, not to mention such public monuments like the Black Obelisk and Balawat Gate, they had a larger audience (both Assyrian nobility and dignitaries from many foreign lands) and more visibility than those on seals or other private media of the Achaemenid period. Moreover, the levels on which the images functioned and the messages they embodied differ significantly: the Neo-Assyrian warfare narratives functioned almost exclusively at the highest register of society—the official or imperial level; they were meticulously calculated, aiming to communicate persuasively and convincingly royal and imperial rhetoric, speaking not only to members of the inner circle of the court, but also to

⁹⁴ These can be exemplified by the bronze gates of Shalmaneser III (858–824 B.C.) from Balawat and a Black Obelisk set up by the same king at the royal capital of Nimrud, or the so-called White Obelisk erected by Ashurnasirpal I (1050–1031 B.C.) or II (883–859 B.C.) at Nineveh.

peoples across and beyond the vast domain of the empire. With the exception of the Behistun relief and its reduced version in Babylon, which functioned on the same level as their Neo-Assyrian counterparts, the examples of warfare images in Achaemenid art operated almost exclusively on a lower social register—the level of non-royal individuals.⁹⁵

If we accept that the Neo-Assyrian reliefs were intended to convey official rhetoric and address a broad range of audiences—both internal and external—within the imperial system (Winter 1981: 31), then it follows that the Achaemenid warfare narratives would have been created to articulate, reinforce, and even to shape a new ideology associated with the elite class.⁹⁶ The Persians, despite their inheritance of many aspects of Mesopotamian cultures (Root 1979), indeed retained and developed their own unique cultural features (Root 2000), including their own imperial and elite ideologies.

Warfare Images and Achaemenid Elite Ideology

As pictorial interpretation of battles and victories, warfare images embody inevitably the ideology of the winners, in this case, the Achaemenid kings and the elites surrounding the royal court. A grasp of this ideology is thus critical for the interpretation of the Achaemenid warfare images. The Persian royal inscriptions, calculated to speak convincingly to an array of audiences, offer intriguing hints about Achaemenid royal and martial ideology. Among the small number of royal inscriptions known to us,⁹⁷ DNB, carved on the lower facade of Darius's tomb at Naqsh-e Rostam,

⁹⁵ The use of warfare narratives by a lower social register corresponds to the similar usage of certain other imagery that had previously been reserved for the king or limited to official usage, such as lion-hunting, which had been historically a royal prerogative in the ancient Near East, particularly during the Neo-Assyrian period. Apart from the palace reliefs, the imagery of a king thrusting a dagger into a rampant lion was used as the central motif on the "royal seals" or official imperial seals (Herbordt 1992, 1997). In the Achaemenid period, the appropriation of royal imagery by private individuals—as opposed to royal or official figures—might have something to do with the emergence of the new elite class.

⁹⁶ To better understand the relationship between a message and its visual articulation, and the process by which the images engaged with the society, see Winter 1981: 31–32.

⁹⁷ Most of the Achaemenid royal inscriptions have been found in or near the royal capitals (Persepolis, Susa, Ecbatana, and Babylon); many of them are fairly short. The majority are dated to Darius' reign. For a list of the Persian version of inscriptions, see Kent 1953: 107–115.

provides the best articulation of Achaemenid royal and elite ideology. In the text, Darius reaffirms what he stipulated earlier on the Behistun Monument: that those subjects who cooperate will be rewarded and those who follow the lie will be punished. Apart from this rhetoric, which is quite divergent from the Neo-Assyrian tradition (Root 2000: 21–22), the inscription contains another set of ideological messages that is unique and essential to the Persians and other Achaemenid elite: the king will award those whose power and loyalty satisfied him (cf. DNb 24–27 [§2e], Schmitt 2000: 40). With *loyalty* and *ability* being the keywords, the king explains in great detail what the notion of ability entails—physical strength, the capability of fighting enemies on the battlefield, and of making good judgments whether beholding or not beholding an enemy (cf. DNb 27–45 [§2e–2f], Schmitt 2000: 40–41). In the text, the king also boosts of his own physical strength and abilities:

... this (is) my ability, that my body is strong (and that) as a battle-fighter I am a good battle fighter ... I am fervent in counter-attack with both hands as well with both feet; as a horseman I am a good horseman; as a bowman I am a good bowman ... as a spearman I am a good spearman. ... (DNb 32–45 [§2g–h], Schmitt 2000: 40–41).

In the following two paragraphs of DNb, the king claims that his skills were divinely bestowed, setting himself as the heroic role model for his subjects, and encourages young people, or the future elite (Schmitt 1990: 43), to demonstrate (presumably both before him and in public) their skills and conduct and ultimately their distinctiveness—“O young man, very much make known of what kind you are, of what kind (are) your skills, of what kind (is) your conduct” (cf. DNb 50–55 [§3a], Schmitt 2000: 41).⁹⁸ The skills and conduct that the king refers to, which have not been well recognized in modern scholarship, would be foremost fighting skills and conduct on the battlefield if reading within the context. The inscription

⁹⁸ There is a major discrepancy between Schmitt’s translation of this paragraph and that of Kent. In Kent’s translation (1953: §9a. 50–55), the king addresses his subject and demands that they be fully aware of his superiority and skills (“O menial, vigorously make thou known of what sort I am, and what sort my skillfulnesses, and of what sort of my superiority”; whereas in Schmitt’s new translation, the king’s addressees—“young man, youth”—seem to be the future elite, and/or perhaps the crown prince and future king (Schmitt 2000: 43).

thus makes it explicit that the most efficient and compelling way for one to satisfy the king and gain royal favor is to display his physical strength and fighting skills. Fighting on the battlefield would offer opportunities for personal distinction and glory;⁹⁹ for the subject of the king, military achievement would provide the paramount proof of his ability/capability but also his loyalty to the Achaemenid monarch. The future kings and elite seem to have indeed taken quite seriously Darius' instruction: the text of DNb was repeatedly replicated by Xerxes (Schmitt 2000: 99).¹⁰⁰ During the early reign of Darius II (423–404 B.C.), it was copied again. This time the inscription, found in the Jewish garrison at Elephantine, appears together with what is perhaps an Aramaic translation of the Akkadian version of the original DB text (Greenfield and Porten 1982: 2–4). In addition to the DB inscription, the Elephantine text seems to have reproduced the final paragraph of Darius' tomb inscription (DNb 50–60), calling upon the people living within the Empire to “[very much] make known how you act and of what sort your behaviors is” (Greenfield and Porten 1982: 46–48).¹⁰¹ The very fact that the scribe at Elephantine chose this particular paragraph and used as the epilogue for Darius's campaign narratives stresses the significance of the paragraph and the importance of making oneself known—presumably through his performance on the battlefield.

Classical authors also testify that the Persian king favors and honors people who demonstrate their heroic deeds on the battlefield. It has been reported that during the Greco-Persian wars, the Persian king Xerxes usually sat on a high platform observing his warriors fighting. He made inquiries on the regiments, patronymics, and cities of origin of those who fought with distinction and ordered his clerks to write down the names of those people in order to reward them accordingly afterward with generous gifts.¹⁰² The Persian soldiers would fight bravely so that their individual

⁹⁹ Another way for one to gain royal favor is perhaps through heroic activities in the hunting arena. This is also manifested through growing popularity of hunting scene in the Achaemenid period. Bregstein (1993: 212) has noticed that among the seals from the Murašû Archive, those with hunting scenes tend to be associated with people of higher social status. The growing interest in hunting images could be interpreted in light of the new elite ideology. See also note 95.

¹⁰⁰ The text was copied by Xerxes on stone tablets and possibly also bricks (Schmitt 2000: 99). In these copies, such as XPI, Xerxes changed the subject of the speech from Darius to Xerxes (“Proclaims Xerxes the King”) and omitted the last paragraph of DNb.

¹⁰¹ Cf. N. Sims-Williams 1981, Greenfield and Porten 1982: 46–48.

¹⁰² The Persians, while inheriting some Mesopotamian and early Iranian traditions, particularly the Babylonian administrative system, also introduced cultural elements peculiar

valor could be witnessed by the king (Herodotus VIII: 85, 90; Diodorus XI: 7.1). These accounts lead to the assumption that some individuals must have had obtained elite status through their distinctive military performance. Celebratory events, which were essential for maintaining the stability of the imperial system, could have been frequently held following the victory of a battle or a war so that the rewarded individuals were officially admitted to elite society and consequently established their newly acquired/promoted status.

The evidence of the Persian royal inscriptions, corroborated by Greek sources, provides an ideological context crucial for interpreting warfare images. Within this context, a warfare image showing a man—both the king and a non-royal individual—engaged in a battle (often but not always in a *mano à mano*, or one-on-one combat) against an enemy would be an appropriate means for demonstrating his physical strength and ability. A number of the warfare images on seals represent royal heroes locked in combat (Pls. 3. b, 6. d, 10. b, c, 11. b). These representations, however, diverge significantly from those on Neo-Assyrian reliefs: in Neo-Assyrian art, a king is often shown receiving captives after a battle is over, and he is rarely seen engaged in a physical combat; whereas in Achaemenid art, it is not unusual to see a Persian king involved actively in a one-on-one combat against his enemies. The divergence speaks from another angle of the Persian notion of kingship and the ideology pronounced in the Achaemenid royal inscriptions—the king being the heroic role model for his subjects.

Echoing royal participation are those warfare images depicting non-royal figures as victorious heroes or in the position to win battles. Some of the examples demonstrate clearly the artists' attempts to articulate the heroes' ethnic or personal identity through depicting such markers as clothing and weaponry, or sometimes even their specific physiognomy.¹⁰³ The

to the new Achaemenid imperial system, such as tribal organization within the imperial structure (Frye 1989) and the system of public gifting. The Persian kings were famous for their generosity in presenting gifts to those who offered good service (for a systematic compilation of the classical source on this issue, see Sancisi-Weerdenburg 1989; Briant 2002: 302–15). The luxurious items that the king used to reward the nobles must have played a significant role in maintaining the stability of the empire.

¹⁰³ The representations of the warriors in battle scenes sometimes do not quite match information given in texts. According to Herodotus, the Persians and Elamites usually wore trousers on the battlefield, but on battle seals, they are often shown wearing long skirts, which were perhaps more of a daily garment and would not have been convenient for fighting. They were so represented perhaps because the skirts could display more explicitly their ethnic identity.

seal of Aršama is a good example—the victor, possibly Aršama himself, is shown wearing a Median type of garment and carrying a Scythian bow case. He is also portrayed with distinctive facial features: a large, elongated face, long broad, and very strong chin, and thick lips (Pl. 4. a). Another example, the BN seal, even conveys the ages of the combatants (Pl. 4. c). Of the two victorious Persian warriors represented on the seal, the one on the right, locked in a hand-to-hand combat with his opponent, appears significantly older than the cadet behind him. The heavy bags under his eye, deep nasolabial folds, and saggy cheeks all suggest that he is of an advanced age. His facial features form a strong contrast with that of his comrade behind him, whose smooth skin and full and round cheek of the face bespeak a much younger age. The central position of the older Persian warrior indicates that he is the main character and thus may be the patron of the seal. If the victorious figures on the Aršama seal and BN seal indeed depict respectively the royal prince and the older Persian warrior themselves, the seals, along with the heroic actions and the individuality that the images exhibit, would certainly be an appropriate and effective means for their owners to “make known” themselves, their skills, their conduct, and thus their power. The problem is, we do not have sufficient evidence to elucidate the relationship between hero being depicted and the person who commissioned or owned the seal. Nevertheless, the seal owner, by owning such an image, could relate himself to the hero, whether the hero was he himself, his ancestor, or the ruling king. That said, the individuality of each representation, especially those created in or near the court circle, combined with a consideration of the particular ideology of demonstrating one’s loyalty, physical strength, fighting ability and skills, make it compelling to suggest that the depictions could have reflected the personal experience—either on a specific day or in a single, distinct moment, or a generalization of more-than-one incidents—of the individual who commissioned the warfare image. Specific or general, the image could potentially carry references to actual and recent “historical” events. Some of the owners of artifacts with warfare images may have gained elite status through their military success. Minû-ana-Bêl-dānu, an administrator at Nippur who owned a warfare seal, could have been one of them. He held the title of LÚ.GAL *um-mu*; this title could denote a military position.¹⁰⁴ Minû-ana-Bêl-dānu and other owners

¹⁰⁴ The identification is proposed by John MacGinnis. Stolper (2001: 106–107) argues that there is no strong basis to support this identification. Although the argument has yet to be settled, it is still worth it to bring attention to it.

of artifacts carrying warfare scenes could have commissioned such images in order to commemorate their military achievements. Or perhaps the images mark some kind of celebratory event associated with acclaimed Persian victories,¹⁰⁵ during which the commissioner's distinction and glory were publically acknowledged and rewarded by the king—according Greek authors, such celebrations, in conjunction with the Persian custom of rewarding victorious warriors, took place frequently during the Achaemenid period (Briant 2002: 304–16).

Warfare Seals and Darius's Image Policies

The chronological distribution of the warfare images offers important information about Darius's policies on image-making/control and the possible changes of those policies over time during his reign. As mentioned earlier, representation of warfare is not found in Achaemenid art until the Behistun relief; the motif seems to have been quite rarely represented during the reign of Darius; and it becomes popular only during Xerxes's reign. Among the 2500 seals identified so far on clay tablets or bullae/labels from the Persepolis Fortification Archive (dated to Darius's years 13–28 [509–493 B.C.]), there is not one single example that replicates the Behistun relief and only handful seals depicting warfare images. The scarcity of warfare imagery on seals from the Persepolis Fortification Archive can be of course attributed to the fact that not all seals from the archive have been studied and catalogued. In fact, I do anticipate that more examples of warfare seals will emerge while the Persepolis Fortification Project makes further progress, but there should be little chance that the emergence of future new material would alter the general picture that warfare imagery was still rarely represented, at least in the early years of the Fortification Archive's time span. That said, that at least a handful of warfare seals existed in Persepolis during Darius's reign indicate that the Great King may have had divergent policies towards the creation of monumental and glyptic art at the empire's heartland. While the images on the official monuments were subject to a tighter control and immune from violence; more freedom was given in the choice of imagery on the private or semi-official media. This includes depicting on seals scenes of warfare and violence, which were themes forbidden on public monuments.

¹⁰⁵ In fact, both Stolper (2001: 108) and Breigstein (1993: 212) have noted early on that some of the military scenes could have been individually commissioned or could have been commemorative.

The small number of warfare images on seals from the Persepolis Fortification Archive could also indicate a gradual change of image policies by Darius. Certain imagery, such as warfare scenes, which were perhaps previously prohibited or under strict control of the king, started to be allowed on objects created for private patrons; and the changes could have begun to occur during the second half of Darius's reign according to the chronological distribution of warfare scenes known to us. Among the handful samples from the Persepolis Fortification Archive, one (on PF-NN 1478) is dated the 18th year (504/503 B.C.) and another (PFS 1156 on PF 1209, cf. Fn. 12) the 23rd year (499/498 B.C.) of Darius's reign according to the dates inscribed on the tablets that carry these seals. The seal image on PF-NN 1478, appearing on the tablet for at least four times, represents a figure on the left pulling a bow and aiming at an enemy on his right; the latter, already wounded by at least two arrows in his torso and an additional arrow on his head, faces and advances toward his antagonist in a pose that is half-kneeling and half-running. Carrying awkwardly a spear in the left hand, the wounded figure extends his right arm forward to either stop an arrow from hurting him or to beg for mercy. The figure on the left, victor-to-be, wears a long robe and carries on his back a tasseled quiver. The garment, loosely Assyrian or Elamite in style, does not allow any confident identification of his specific ethnicity and is thus non-specific. The figure on the right, obviously the defeated, wears a conical hat and some sort of tight lower garment, perhaps trousers. A large gorytos around his waist indicates that he has a steppe background, but no other markers would allow any further identification of his ethnic affiliation (Pl. 14. b). The lack of specificity on this image sets the representations in a strong contrast against the warfare scenes from the Persepolis Treasury Archive (492–460 B.C.), whose date spans from the last six years of Darius, the entire reign of Xerxes, and the first five years of the reign of Artaxerxes I (Cameron 1948: 1), and those similarly dated examples discovered by Tadjvidi inside one of the fortification towers at Persepolis (cf. page 7 above). The seal on PF-NN 1478 was most likely carved at Persepolis.¹⁰⁶ The lack of specificity of the figures on PF-NN 1478, as

¹⁰⁶ In his study of seal on PF-NN 1478 (originally numbered PFS 2286), Garrison (2010) notes that “although a rare scene, analyses of aspects of the composition, iconography and style of the imagery on this seal indicate that the seal design in fact is firmly embedded within Persepolitan glyptic of the late 6th century B.C.”

also observed on four of the other warfare seals that I have seen, among which some even display features that seem incoherent and transitional, indicates that during Darius's reign the representation of warfare was not yet a familiar theme for the seal cutters at Persepolis. This becomes particularly clear when the material from the Persepolis Fortification Archive is compared with the fine, well-established style and iconography of warfare created during the reign of Xerxes. In other words, those seals from the Fortification Archive may have belonged to the first experiments at Persepolis for both the seal cutters and commissioners; and they were carved perhaps in response to the "codes of conduct" stipulated by Darius in DNb on the façade of his royal tomb. This introduction of warfare as a new theme of glyptic design at Persepolis may underlie a changed image policy of Darius in conjunction with his call to young people to demonstrate their loyalty, skills, and performance on the battlefield and the opening of the heretofore-restricted warfare images to the public. If this assertion is acceptable, the early warfare seals—with the one on PF-NN 1478 being the earliest (Darius's year 18)—from the Fortification Archive could also shed lights on the unsettled question of the dating of Darius' tomb.¹⁰⁷

The un-elevated statuses of the owners of the early warfare seals, including both the abovementioned Šimumu and the other known owners from the Persepolis Fortification Archive (cf. Fn. 87), may suggest that during the early stage of its development, warfare images were not particularly associated with people of high social status, but with presumably those who had battlefield or related experience. Over time, the imagery moved up to higher social registers and was eventually adopted by people of more elevated statuses. The increased level of details and thus specificity for the warfare images, along with their rise in number, may indicate a transition of policies towards more open ones during Xerxes's reign. As mentioned above, multiple copies of the DNb text by Xerxes indicate that the latter followed closely Darius's instruction and emphasized heavily military ability and fighting skills.¹⁰⁸ The classical accounts on Xerxes's observation of

¹⁰⁷ The dated seals from the Persepolis Fortification archive corroborate with Root's postulation that the tomb was built before Darius had officially selected Xerxes as his prince co-regent (Root 1979: 75). A recently published text (NN 1657) mentioning Xerxes seems to suggest that Xerxes was already designated as the crown prince in Darius's year 24 (498 B.C.) (Henkelman 2010: 29).

¹⁰⁸ See note 100.

his soldiers' performance, combined with the military seals preserved at the Persepolis Treasury, provide further support that Xerxes probably also encouraged his subjects to demonstrate their distinction and glory on the battlefield.

The parallelism between texts and images concerning military themes during the reign of Xerxes is also observed in such material associated with the reign of Darius II (423–404 B.C.). This is demonstrated by the re-copied Aramaic version of the Behistun inscription from Elephantine, which was under the control of the Persians at the time, and the large number of warfare scenes—at least 15—from the Murašû Archive and dated to Darius II's reign.¹⁰⁹ The Elephantine text was, as Greenfield and Porten have suggested (1982: 3), inspired by the political disruptions of Darius II's time. The text was perhaps “deliberately and paradigmatically re-circulated” to celebrate the king's triumph over his challengers to the throne (Kuhrt 2007: 151). One special feature about the Elephantine text is that besides the paragraphs from the DB, the inscription also contains a copy of a passage from a different source—the last paragraph of DNb.¹¹⁰ This passage stresses that a man should display his “acts” and “behaviors.” Although these words do not refer explicitly to military abilities and skills, reading them in a specific context that speaks exclusively about military campaigns suggests that they refer to most certainly “acts” and “behaviors” on the battlefield and thus confirm an elite ideology—in this specific case, “the loyalty of the Elephantine Jews to the Persian crown” (Greenfield and Porten 1982: 3). The warfare seals preserved on tablets from the Murašû Archive, despite its small portion among all the seals found on the Murašû tablets, constitute a large proportion of the warfare seals known to us. Equally significant is that they are all dated to the first seven years of the reign of Darius II.¹¹¹ The *terminus ad quem* of the carving of these warfare seals corresponds exactly to that of the Elephantine version of the DB assigned by Greenfield and Porten, which is the sixth or seventh year of Darius II.¹¹² The seals thus offer external information on the dating of the Elephantine text and provide from another angle evi-

¹⁰⁹ This number excludes Bregstein 1993: 195 and 199, whose images are dubious. See also note 92.

¹¹⁰ Cf. N. Sims-Williams 1981, Greenfield and Porten 1982: 46–48.

¹¹¹ See notes 22, 23.

¹¹² The text has been dated differently to the last quarter of the fifth century B.C. by J. Naveh (cf. Naveh 1970:35, Greenfield and Porten 1982: 2).

dence for the uneasy political situation faced by Darius II. The military tensions and social anxiety within the empire could have led Darius II to call, once again as Darius I or Xerxes did, for people to display their loyalty through achievements on the battlefield. That said, it should be noted that the examples from the Murašû Archive come from a very different milieu—from a small number of Babylonians (rather than Persians) involved with the Achaemenid administration but with no proven particular relationship to the Persian regime.¹¹³ Thus they are not necessarily intimately connected with the Achaemenid royal family. But if *even* the Babylonians commissioned warfare images, then *a fortiori* one could guess that, were we to have a corpus of Persian homeland seals, it would be full of such things.¹¹⁴



Three conclusions can be drawn from the examination of the pictorial representations of warfare scenes on glyptics (and occasionally other media) and the verbal and visual expression of elite ideology in royal inscriptions of the Achaemenid period. They are: first, not all warfare images can be considered representations of actual historical events. While some are likely to be visual documentations of actual historical events, others are merely generic motifs. And there are no clear-cut line between them. The images should thus be treated case by case. The non-historic scenes were often produced outside the core of the Achaemenid Empire, especially in Anatolia, where Greek culture had markedly fused with and influenced the local visual language. The scenes that document actual historical events portray the political and military conflicts between Achaemenid imperial power and its frontiers, places where Persian authority was contested. Among the more “historical” scenes, some—especially those bearing royal images—might commemorate *histoire ancienne*; others might have been created based on the personal experiences of those who commissioned them and document a *histoire récente*, or events that occurred during the commissioner’s lifetime. The latter are particularly useful for reconstructing the history of the Achaemenid

¹¹³ I owe to Michael Roaf and Christopher Tuplin for this clarification.

¹¹⁴ I am thankful to Christopher Tuplin for this suggestion.

Empire: created as tokens of personal memory, each image in fact encapsulates a fragment of the history of the society in which the image was created and consumed. Thus, although these warfare scenes were not particularly created to document the imperial history, taken as an integral corpus, the images reflect from a particular angle the history of the Achaemenid Empire. This history, unlike the Assyrian verbal narratives written by the king, is an unofficial visual illustration of the past of the Achaemenid Empire. Though, to be sure, it was a history preserved under the encouragement of the Great King, it nonetheless provides evidence from the point of view of elite members of Achaemenid society.

Second, an examination of the three groups of warfare scenes categorized by the geographical indicators of the enemies of the Achaemenid Empire demonstrates that among scenes potentially representing actual historical events, warfare against people of Central Asia and the steppe are prominent. This likely indicates the difficulties the Persian rulers encountered in the empire's northeastern frontier, during especially the second half of Darius's reign and the reign of Xerxes. People of Central Asia and the steppe must have had presented the Achaemenid kings with profound problems; these problems could be different from but they were no less challenging than those from Greece and elsewhere. In other words, the people of the Central Asian oasis and steppe undoubtedly caused significant political turbulence, even though we have yet to evaluate the exact degree of agitation. Imagery of battles against or victories over Central Asians was adopted in local visual repertoires of various provinces. The popularity of such imagery within the imperial territory, from such as Nippur in Mesopotamia and especially Anatolia, reinforces the notion that on the ideological level, at least, people of Central Asia and the neighboring steppe must have been conceived strong "enemies" of the empire.

My third conclusion is more speculative and needs further scholarly inquiry to establish beyond question: that the particular popularity of the warfare scenes, along with hunting representations, in Achaemenid art could indicate the emergence of a new social structure, within which members of society could obtain elite statuses through their military prowess. Warfare representations on seals and other media would have functioned, on the one hand, as reminders of the heroic deeds of the elite of disparate ethnic affiliations, and, on the other hand, as announcements of these individuals' entry into the Achaemenid elite class.

We cannot resolve the arguments on whether the Achaemenid kings recorded their history in written narratives, but we can concur that the Persians have certainly adopted visual narratives to record their past, although these records were mostly initiated and preserved by individuals and on less public media, rather than by the kings on stately buildings such as those at Persepolis or Pasargadae. The numerous warfare images, when studied together, present a collection of memories of the Persian elite and should rightfully be considered as an important source of information for studying the history and ideology of the Achaemenid Empire.

Postscript

Since the submission of this article, a development regarding the cylinder seal of Aršama has shown that it belonged originally to another Aršama, also a royal prince. Consequently, the seal was carved well before the time of its eventual and more famous owner—Aršama the Satrap of Egypt. While the new datum sheds light on aspects of Aršama life and makes a significant contribution to Achaemenid studies, it does not negate my argument that there could be a link between the seal owner(s) and the representation on the seal. Inheriting the seal, or its unique image, suggests that the satrap's intention was to project himself as a brave warrior or at the very least, one who was closely linked to such a warrior—a homonymic ancestor who was perhaps recognized by his distinctive performance in battle(s) against people of the east. Also the earlier date does not alter my hypothesis that there might have been a change of policy in the midst of Darius' reign. The seal and other early examples from the Persepolis Fortification archive, such as PFS 2454 on NN 1478, imply that Darius could have decided to permit warfare images for a non-official purpose following specific military action(s) against the empire's enemies in the northeast. I am deeply indebted to Professor Tuplin for sharing this important find and his manuscript Tuplin, C., "Sigillography and Soldiers: Cataloguing Military Activity on Achaemenid Period Seals", forthcoming; and to Professor Garrison for permission to present this information in advance of its publication, Garrison, M.B., "The Seal of Arshama," and Garrison, M.B. & Kaptan, D., "A Catalogue of the Arshama Bullae," in *Communication, Language and Power in the Achaemenid Empire: The Correspondence of the Satrap Arshama*, J. Ma and C. Tuplin (eds.). Oxford, forthcoming.

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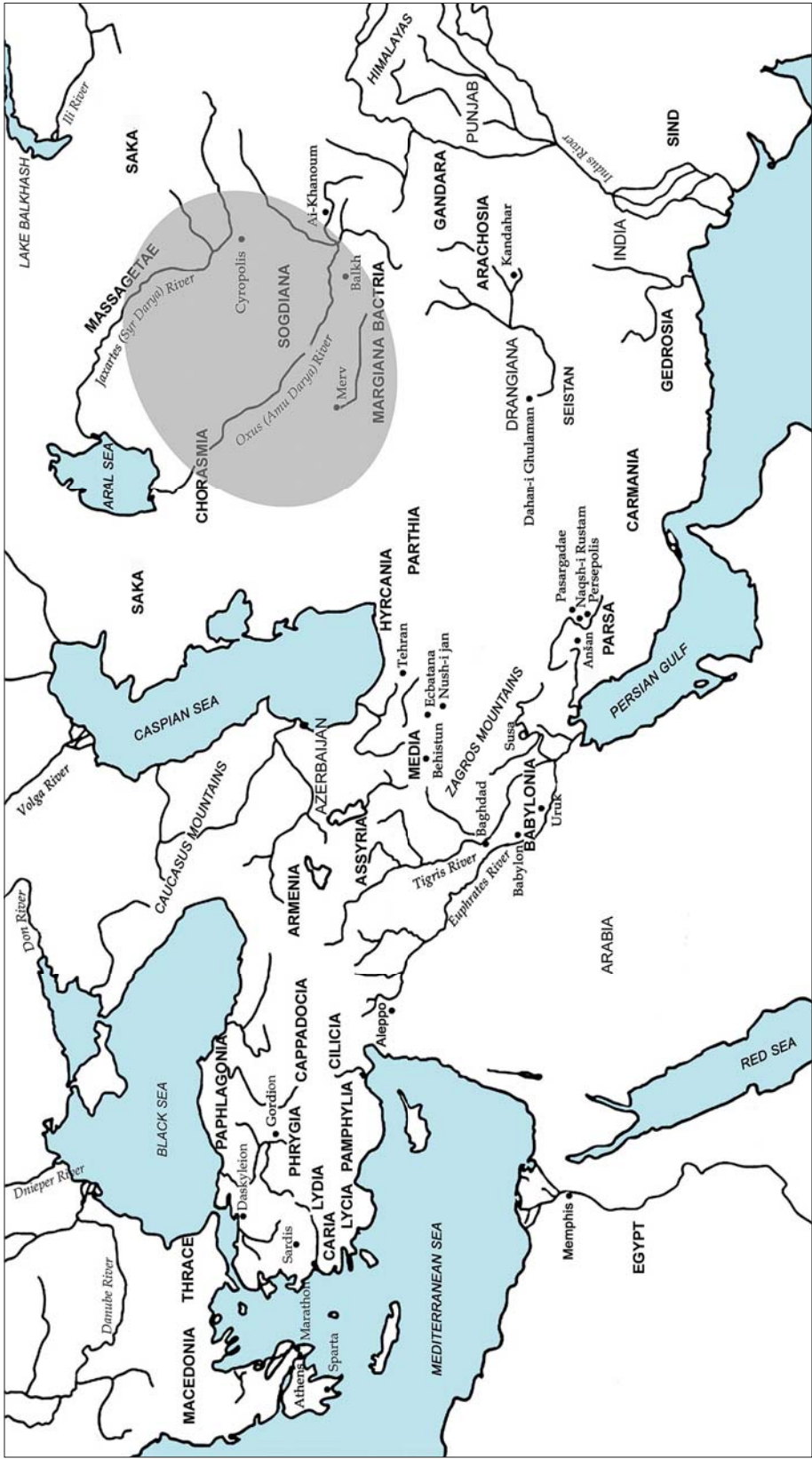
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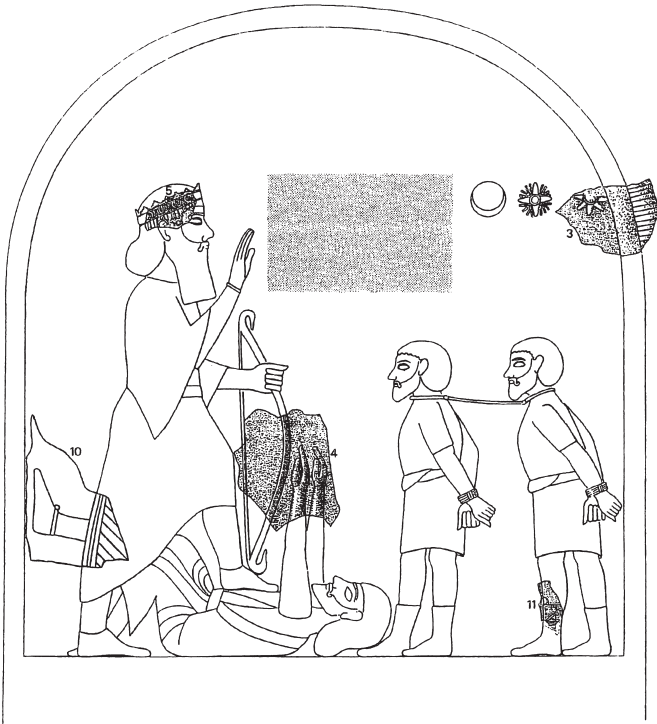
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Pl. 1. Map of the Achaemenid Empire (ca. 550–330 B.C.), with Central Asia noted in gray.

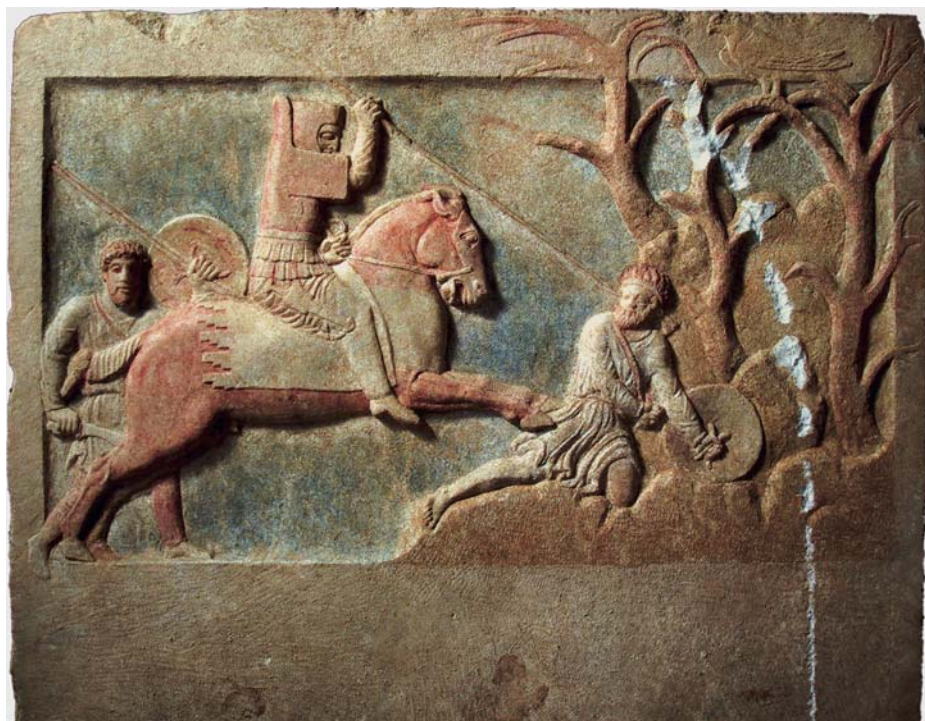


A



B

Pl. 2. a. Rock relief of Darius at Behistun. (Photograph taken by author).
b. Drawing of stele from Babylon. (From Seidl 1999a: 111, Abb. 2).



A

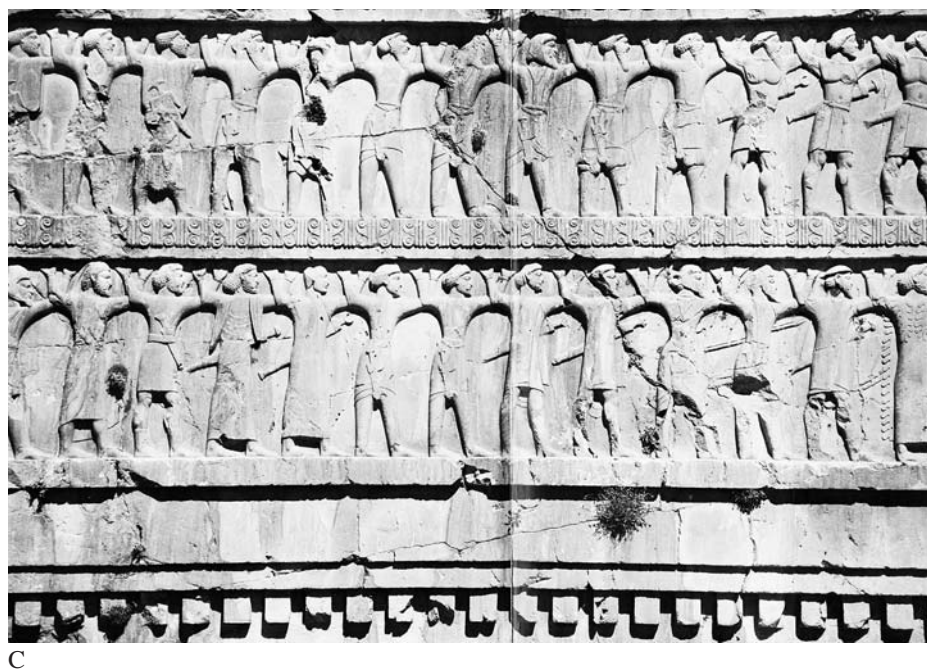
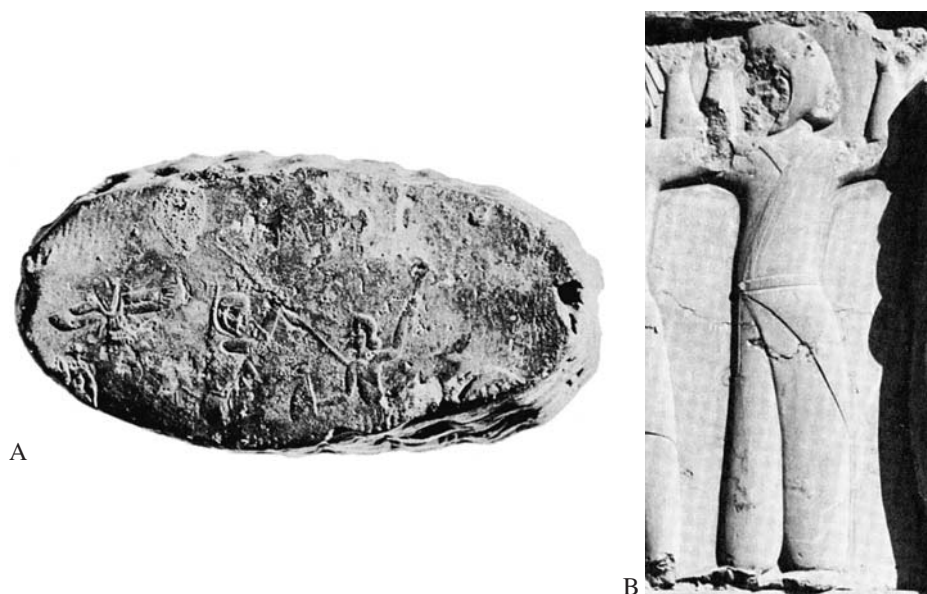


B

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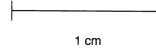
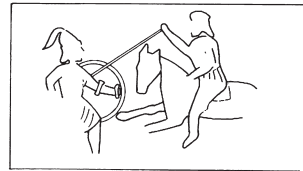
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A



B



C



D

Pl. 6. a. Cylinder seal (PTS 28) on clay bullae from the Persepolis Treasury. (From Schmidt 1957a: Pl. 9, Seal No. 28). b. Clay sealings from Daskyleion, Turkey. (From Kaptan 2002: pl. 207). c. Impression of stamp seal from Bolsena, Italy. (From Boardman 2000: 5.46). d. Seal of Iltammeš-barakku, from Murašu Archive, Nippur. (Drawing based on Legrain 1925: 995).



A



B

Pl. 7. a. Impression of cylinder seal, with inscription of name of Artaxerxes. Pushkin Museum of Fine Arts. (From Dandamaev 1976: taf. V). b. Impression of cylinder seal with Persian hero slaughtering an Egyptian pharaoh and leading a file of Egyptian captives. State Hermitage Museum. (From Boardman 2000: 5.6).



A



B

1 cm

Pl. 8. a. Rock relief at Sar-i Pol, Iran, 21st century B. C. (From Porada 1965, rev. 1969: 36, Fig. 15). b. Seal of Kuraš of Anšan, (PFS93*), from Persepolis Fortification Archive. (Image courtesy of the Persepolis Fortification Tablet Seal Project and the Persepolis Fortification Archive Project).



A



B

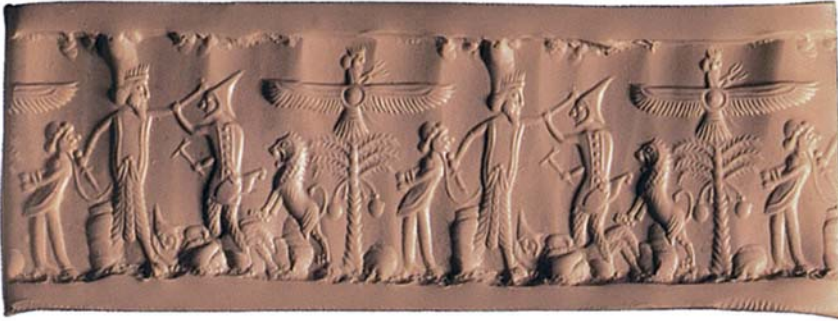


C

Pl. 9. a. Impression of cylinder seal from Oxus Treasure. British Museum. (From Curtis and Tallis 2005: 229, no. 413). b. Clay bulla from Artachate. (From Santrot 1996: pl. 222, n. 210a–1). c. Clay bulla from allegedly Telloh, Louvre Museum. (Photograph by Cyril Frésillon, Collège de France).



A



B



C

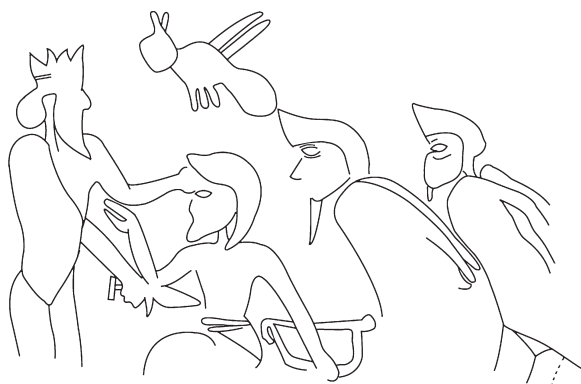
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A



B



Pl. 11. a. Cylinder seal (PTS 29) on clay bulla from Persepolis Treasury. (From Schmidt 1957a: pl. 9). b. Seal of Minû-ana-Bêl-dānu on clay tablet, (CBS1594). (Image courtesy of Babylonian Section, University of Pennsylvania Museum of Archaeology and Anthropology).



A



B

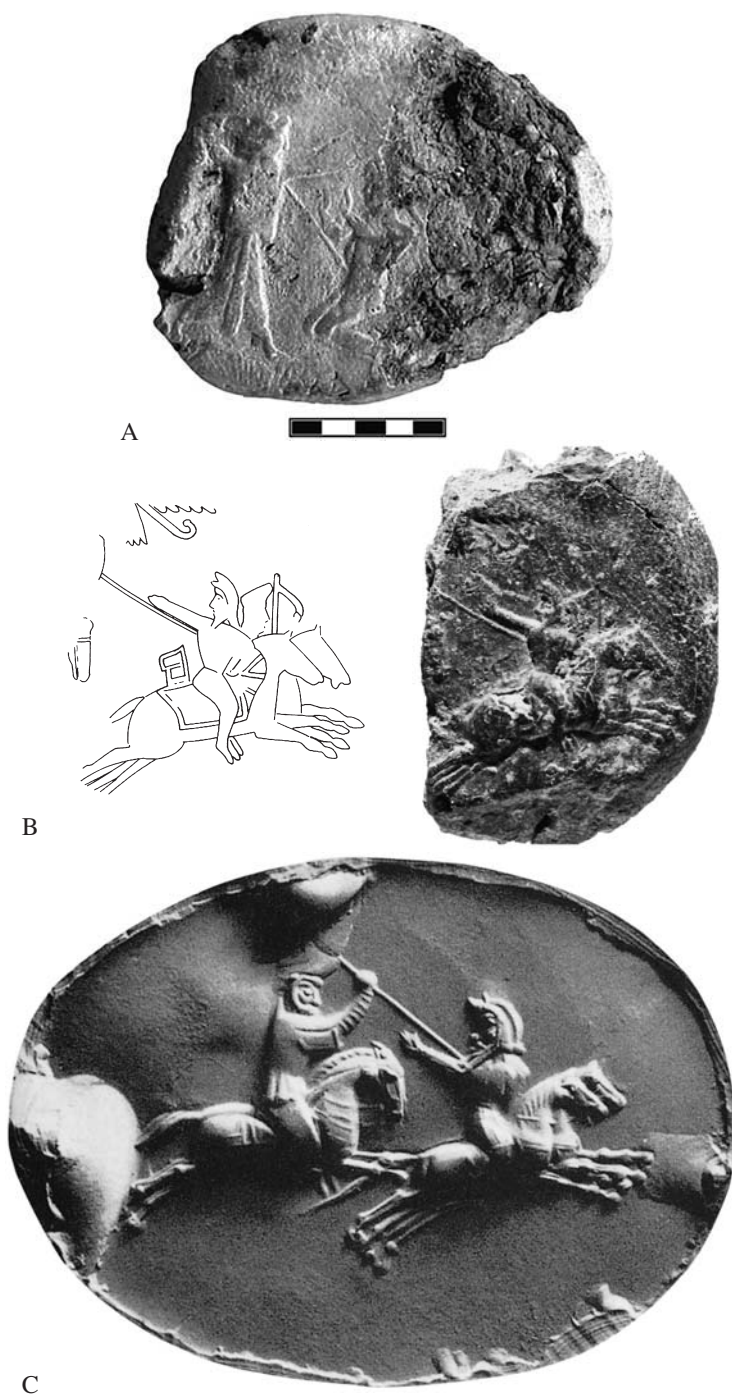


C



D

Pl. 12. Seal of Ribat on clay tablets from the Murašû Archive, Nippur. (Drawing by author, photograph courtesy of Babylonian Section, University of Pennsylvania Museum of Archaeology and Anthropology).



Pl. 13. a. Clay bulla with cylinder seal impression from Seyitömer Hüyük, Turkey. (From Kaptan 2008: 660, fig. 1). b. Drawing and photograph of stamp seal from Daskyleion, Turkey. (From Kaptan 2002: pl. 209, figs. 272–73). c. Modern impression of stamp seal. State Hermitage Museum. (From Boardman 1970: 882).



A



B

PF-NN 1478



Pl. 14. a. Drawing of gold band from Siberian Collection of Peter the Great, State Hermitage Museum. (From Rudenko 1962: 29, ris. 29). b. Photograph of clay tablet (PF-NN 1478). (Image courtesy of the Persepolis Fortification Tablet Seal Project and the Persepolis Fortification Archive Project).

IN SEARCH OF THE LAODIKE TEMPLE AT LAODIKEIA IN MEDIA / NAHAVAND, IRAN

BY

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Abstract: Although important archaeological remains, such as Greek inscriptions and architectural elements are known from Nahavand since several decennia, it lasted until 2005 before a first exploratory season with excavations took place, followed by a second one in 2011. So far this research has led to important observations for the Seleucid and Parthian periods, but it is still too early to be able to locate with precision the temple in honour of Laodike, wife of Antiochus III. However, this temple is most likely to be located in the northwestern part of the town since several Seleucid/Parthian architectural remains have been found there.

Keywords: Laodikeia, Media, Nahavand, Queen Laodike, Antiochus III, Seleucid temple.

Archaeological remains of the Seleucid period in Iran are scarce and so is the written evidence. Though, more than a century ago objects to be attributed to this period have been reported from Nahavand, but until recently no real attempt had been made to get more detailed information on the site. Nahavand, in Hamadan province, lies south of Hamadan and some 40 km southwest of Malayer and to the northwest of Borujerd (fig. 1).

Previous discoveries

In 1910/11 a chance discovery in the vicinity of Nahavand of several silver and golden objects and vessels, probably of Parthian date but likely also containing heirlooms, drew attention to this location (Herzfeld 1928) (Pl. 2, n° 1-3). As the story goes, a landowner while working on his land found a vaulted chamber, possibly a tomb, filled with gold and silver.

A major discovery in 1944—once again a chance find—was made by a resident of Dokhaharan district in Nahavand city. Two Greek inscriptions



Fig. 1. Map with location of Nahavand

were found. The largest and well preserved (H. 119 cm) inscription allowed to identify this city with an ancient town called Laodikeia (Robert 1949; Rougemont 2012: 133-138, fig. 66) (Pl. 3, top). The 33-line inscription to be dated in 193 BC., had been written by the order of the Seleucid king Antiochus III (223-187 BC.). The stela was erected by the satrap Menedemos after he had received the message from the king. It is a request to construct a temple dedicated to the official cult for Laodike, Antiochus III's wife. Antiochus had sent a letter to all governors of his empire asking them to transmit the message to the magistrates and officials of the towns concerned. The letter had to be written on a stela and then shown in the most visible places of the city. At Nahavand the king's message was passed on by Menedemos to Apollodotos and other officials of Laodikeia.

In this respect it is also interesting to mention that another stela with a similar message and equally addressed to Menedemos, has allegedly been discovered somewhere in the region of Kermanshah (Robert 1967: 283-294; Rougemont 2012: 140-144, fig. 68). On this stela the message of Antiochus III was transmitted by Menedemos to Thoas. Yet another stela, but with the same message of the king, had also been found in 1884 at Dodurga, in the Karayük plain in Phrygia (Robert 1949: 8-10).

The other partially preserved inscription of only five lines (H. 19 cm, width: 34 cm), discovered at the same spot at Nahavand as the previous one, is an honorific text in honour of governor Menedemos (Robert 1949: 22-24; Rougemont 2012: 139-140, fig. 67) (Pl. 3, middle). Both inscriptions are now at the National Museum in Tehran.

Beside these inscriptions some other objects were reported to have been found. Late in the 40's (Robert 1949: 21) Roman Ghirshman, on his way to Susa, spend a day at Nahavand and visited the spot where the inscriptions had been discovered. In a letter, he informed L. Robert that "*La ville hellénistique couvrait une importante éminence à la bordure de la ville*". Further on he commented: "*Toutefois j'attire l'attention de M. Robert sur ce que toute cette partie de l'ancien site est fouillé en plein jour, sous prétexte d'enlèvement des terres ou de pierres pour les constructions modernes*" (Robert 1949: 21).

Ghirshman also talked to the man who accidentally had found the inscriptions and who showed him a shattered column very close to the spot where he had found the inscriptions. An elder man also informed him that 50 years earlier he had seen in the area six columns buried below ground. A couple of days before Ghirshman's visit a round stone altar decorated with a ribbon carved in relief (H. 100 cm; diam. 90 cm) had been found (Ghirshman 1963: 19, fig. 24) (Pl. 2, bottom).

Ghirshman also reported on the discovery of bronze figurines of Greek gods (such as Zeus, Athena, Apollo, and Demeter/Isis-Fortuna) and now in the possession of the National Museum of Iran at Tehran (Ghirshman 1963: 19, fig. 23) (Pl. 3, bottom). M. Rahbar (1976: 253) published another one, probably a Hermes figure, as equally coming from Nahavand (Pl. 3, bottom right). These statuettes were previously usually attributed to the 3rd/2nd. c. BC., but they are likely of later date (Roman Imperial) (Callieri 2007: 79-80).

Although Ghirshman was unable to locate exactly the site of the Laodike temple, he drew nonetheless attention to the importance of the site and the urgent need to explore the area. Also Louis Robert (1949: 21) had expressed the wish and suggestion of further exploration and to proceed with excavations: *“Il n’est pas besoin de souligner l’intérêt qui s’attacherait à la fouille d’une des villes grecques de l’Iran, et, en l’espèce, à la Laodicée de Néhavand.”*, *“Je dirai même que, même si l’endroit avait été ravagé par des fouilles clandestines, il faudrait en avoir le coeur net et ne pas laisser inexploré le principal sanctuaire d’une Laodicée d’Iran”*. Although the Laodike temple was registered in the Iranian list of historical sites as early as 1949 no further research was undertaken till 2005. In the meanwhile extensive building projects had taken place.

In 1978 the construction of a street by Nahavand municipality in the area of Dokhaharan and Pa Qaleh had led to the discovery of a column. Gh. Masoumi, while doing a survey in Kermanshah region was dispatched to inspect the site of the newly found column but he judged it as not that important and building activities were resumed. In his unpublished report, he also provided a sketch of a column base that had also been found (Pl. 12, n° 4). More recently a Parthian pottery coffin burial had been located in the courtyard of the Communication Office, as well as a Parthian cemetery in the northeast of Nahavand.

In addition to these discoveries, while excavations were taking place in 2005 and 2011, residents of the area showed some objects they had found. These included a single Seleucid bronze and two Parthian bronze coins, as well as a pottery human figurine (Pl. 4). Although these finds were not obtained from scientific excavations, they can somehow be regarded as archaeological items further documenting the historical periods at this part of the site.

The location Dokhaharan and research results

Dokhaharan and Pa Qaleh neighborhoods are located in the northwest corner of the city near a high rock called Choqa overlooking the plain (Pl. 1). Main access to this area is from the south through the streets of Dokhaharan, Qeysariyeh and Pa Qaleh. These are among the oldest neighborhoods in Nahavand with a traditional layout and narrow alleys. Housing obscures and hides all archaeological remains. In the center of Dokhaharan there is an old building called ‘Emamzadeh Dokhaharan’ also known to the locals as Khaharan-e Emam Reza.

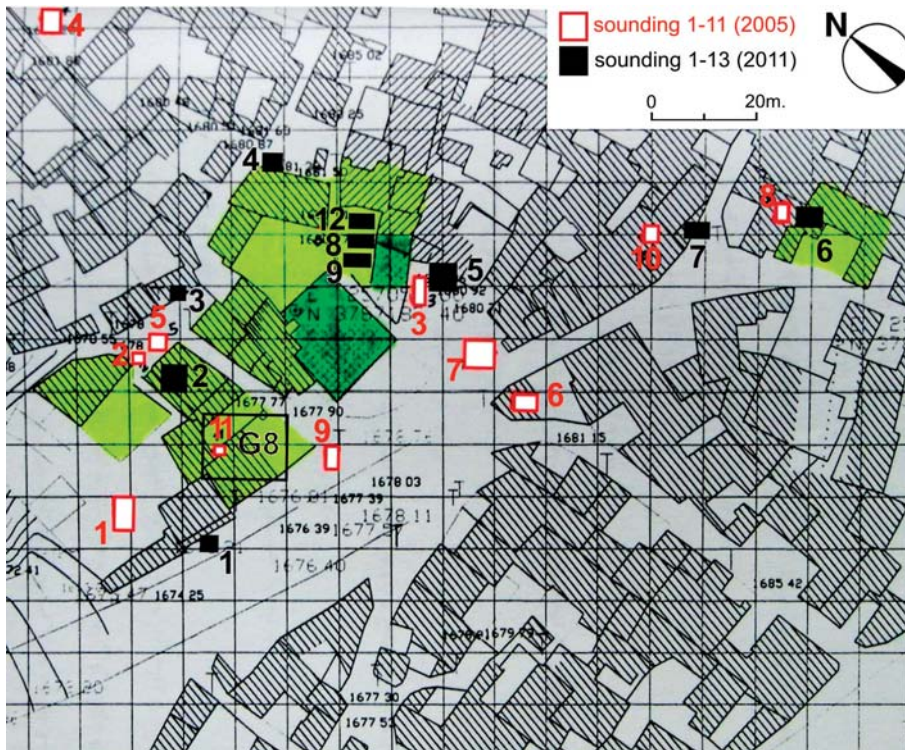


Fig. 2. Location of the 2005 and 2011 soundings.

In 2003 the Nahavand archaeological project was launched and a first one month season took place in 2005. A second season, after a six year delay, was undertaken from June to August 2011.

During the 2005 season eleven soundings were made and thirteen in 2011 (fig. 2). These trenches varied in size, according to the space available. In general different periods were attested, but only in one area (trench 11/2011) (Pl. 16) architectural remains *in situ* were encountered.

In one place bedrock was reached after barely 50 cm; another sounding proved to have been filled with more than 3 m of soil of recent date. However, in some soundings an excavation of 4 to 5 m depth was possible, but everything proved to have been mixed up due to disturbances over centuries. In other places, as soon as bedrock, water pipes or sewage system were reached the excavations were halted. As said already, only one intact area was located (sounding 11/2011). The 5 × 5 m trench had *in situ* deposits, including architecture, a vessel with a small collection of coins and a significant amount of sherds of Seleucid and Parthian date (Pl. 16 & 17).

At the end of the season each sounding was refilled. Unpublished reports by M. Rahbar were submitted to the archive of the Iranian Center for Archaeological research in Tehran and a short note was put in 2009 in the “Project Gallery” of the journal *Antiquity* (Rahbar & Alibaigi 2009).

Pottery

The pottery found on the surface or from the soundings belongs mainly to the Seleucid, Parthian, Sassanid or Islamic periods but since the layers have been mixed up several times, some sherds are hard or even impossible to attribute to a particular period. However, there was always a vast quantity of Islamic sherds.

The earliest remains to be found were a couple of Godin III-sherds. The most characteristic categories for the Seleucid and Parthian periods are without doubt sherds of painted festoon ware and clinky ware.

* *Festoon ware*

Some fifty painted sherds of the festoon ware type were recognized (Pl. 5 & 6). This ware, mainly to be found in Central Western Iran, was however also attested in Fars and Khuzistan and its production probably started in the (late?) Achaemenid period. Its main period of production has certainly to be situated in the Seleucid period. It lasted maybe into the 1st c. BC. (Haerinck 1983: 25-27, fig. 2 & 98-100, fig. 14; Adachi 2005: 28, fig. 2 & 4).

At this point it is also interesting to remember Herzfeld's rhyton in the shape of a bovid's head and in festoon ware style (now in the British Museum) (Pl. 7, bottom). Herzfeld described it as coming from the “*Nihawand region, allegedly from the town Nihawand itself*” (Herzfeld 1929/30: 70; Herzfeld 1933: 19-20, 24, Pl. XXII; Herzfeld 1941: 92-93, Pl. XV). He also published other sherds of this style from Nahavand (Herzfeld 1933: 19, 20, 24, Pl. XXII, 2, 4; Herzfeld 1941: 92-93, fig. 184) (Pl. 7).

* *Clinky ware*

This ware is an excellent diagnostic for the Parthian period and is present on numerous sites in Western Iran (Haerinck 1983: 100-106, fig. 15-16, Pl. VII: 1-2; Adachi 2005: 27-28, fig. 3) (Pl. 8, bottom & Pl. 9). Its production started maybe in the first half of the 2nd c. BC., but it is difficult

for the moment to establish for how long it lasted. Maybe its production went on till the end of the Parthian period (in this respect it is worth mentioning that the vessel containing 11 coins to be dated between the 1st. c. AD. and somewhere in the first half of the 2nd. c. AD. is equally clinky ware: Pl. 16).

In Nahavand this pottery was not only attested in the Dokhaharan area, but also in a vast area around and on Choqa's rocky outcrop.

Architectural remains

Most architectural remains found, such as walls or foundations, belong to the Islamic period. Clear Seleucid and Parthian structures are absent most likely due to later perturbations. Since the layers are mixed up it is difficult, if not impossible, to obtain a decent idea of the developments that have taken place through time and remains are difficult to be attributed to one period or another.

Only in one sounding, though equally as disturbed as the other areas, remains of a mud brick wall (brick size: $33 \times 33 \times 8$ to 10 cm) and a thin mud layer as floor were unearthed (Pl. 16). A deep sounding in that trench showed, however, a still 1.5 m intact layer of the Parthian period. In other places, bases, columns and a capital as well as fragments of worked stones were found, some of them in a re-used situation.

Architectural remains of possibly Seleucid date

Several dispersed and often re-used columns bases, column shafts and an Ionic capital were found.

** Ionic capital:*

(73.5 cm wide and 26.5 cm high): a nice Ionic capital with the usual contracted volutes (Pl. 10-11). The capital was transferred to the Nahavand museum (=Hammam-e Hajj Agha Torab). Top part of the central decoration is lost.

** Column bases and shafts:*

The column bases resemble quite closely a column base found at the graveyard of Bisitun (Luschey 1996: 57, Taf. 7 n° 2; Kleiss 1996: 248-249, Abb. 5).

- One (60 cm in diam. and 33 cm high), badly worn due to its long use as mortar, was located in the courtyard of a house in Qeysariyeh area (Pl. 12, n° 2; Pl. 15, top left).
- In the area west of Hosseinieh and Emamzadeh Dokhaharan near Choqa rocky outcrop, known as Hammam-e Dokhaharan another base was found upside down, supporting a Qajar period column. It is a circular base, ca. 90 cm in diam. and 50 cm high (Pl. 12, n° 5). A similar base with the same measurements, was found some 30 years ago by Mr. Gh. Masoumi (Pl. 12 n° 4).
- Equally in the Dokhaharan area, at the southern limit of Dokhaharan Street and 100 m East of the mosque and Emamzadeh Dokhaharan, remains of a column base, shaft and several pieces of carved stone were unearthed in a sounding in an area about 2.5×7.5 m. These pieces probably belong to the Seleucid era (Pl. 13, top & Pl. 14). The measurements were difficult to establish since the fragmentary large base decorated with mouldings and with shaft without flutes is partly stuck beneath the wall of a modern house. The base has a diam. of approx. 68 cm and the measurable height was at least 70 cm.
- Another big shaft without flutes was also discovered in this sounding and could as well belong to the Seleucid period (Pl. 13).

Other finds

* *Coins*: In an area 150 m east of Emamzadeh Dokhaharan, a trench of 1×5 m was opened in an unoccupied plot. Unfortunately this area proved to be largely disturbed like all other areas. However, at a depth of approx. 1.20 m still substantial intact Parthian and perhaps Seleucid levels were encountered. Bedrock is only at 3.20 m depth; so at least some 2 m intact levels are likely to have been preserved. At 1.08 m a small “clinky” pottery vessel containing eleven Parthian silver drachms were found under a floor of a Parthian construction (Pl. 16). These coins range between the beginning of the 1st c. AD. and somewhere in the first half of the 2nd c. AD. They are to be attributed to different kings between Vonones I and Vologases III and were all minted at Ecbatana/Hamadan (Pl. 17). Below this floor, still more layers were evidenced and a largely preserved, small spouted and painted vessel was excavated (Pl. 8, top).

Quarries

The stones used at Nahavand, for any period, were most likely extracted from two main sources. The most important one is likely the large rock cliff called Choqa near Dokhaharan and Pa Qaleh (Pl. 18); the other one is situated along the Nahavand-Malayer road, to the NE of Nahavand city. In both places there are wedge sockets and shallow channels for placing wedges and guiding the splitting of the rock. The color and quality of the discovered architectural remains are very much like the stone to be found at Choqa rock cliff.

Conclusion

The discovery of several architectural elements in such a small area in the NW of Nahavand is very encouraging and promising for future research. It is quite likely that one should look for the remains of the Seleucid temple or other Seleucid and Parthian buildings along the eastern parts of Dokhaharan neighborhood, i.e. between Kucheh Derazeh, Pa Qaleh Square and Hosseinieh Dokhaharan. It is, however, not sure if the disturbances over centuries will have left anything recognizable.

We should also draw attention to the fact that the bases found so far have different sizes. The question remains whether they belong to one and the same building (they could belong to a porch, pronaos or colonnade), or that they come from different buildings/sanctuaries of the Seleucid or Parthian periods in the same sacred area. Though, as shown, the area is very disturbed and a large area with modern houses should be demolished and cleared to make way for further excavations.

The archaeological explorations have just begun in Nahavand, but the information gained during these two seasons of survey has unfortunately not yet helped to find the precise location of the temple for Laodike. However, the results of this research have increased our limited knowledge about Nahavand significantly. New information and older documents show that the temple of Laodike is likely to be located somewhere along Emamzadeh Dokhaharan. Seleucid and Parthian remains like the Greek inscriptions, the stone altar, the bronze god figurines, the stone column bases, the Ionic capital and the pottery of this period were discovered in this area. They all indicate that there was at least one major structure located in this part of Nahavand.

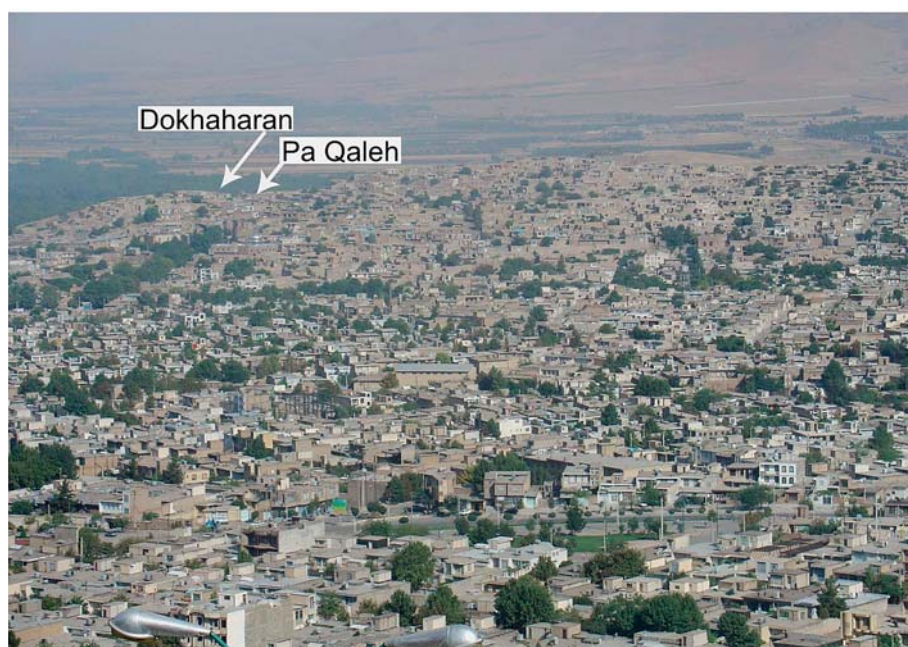
Acknowledgment

The first season of Nahavand project was launched by the agreement and support of the late Dr. Massoud Azarnoush, Head of the Iranian Archeological Research and with the perseverance of Mr. F. Farzaneh, Head of the Cultural Heritage Organization of Hamadan at that time. Attempts to restart the archaeological excavations in Nahavand were due to Mr. Ahmad Torabi and support of Mr. Asadollah Bayat, general manager of the Cultural Heritage, Handicraft and Tourism Office of Hamadan. We are also thankful to the late E. Siyavashi for his sympathy and cooperation and to all the individuals for help during these two seasons of survey in Nahavand.

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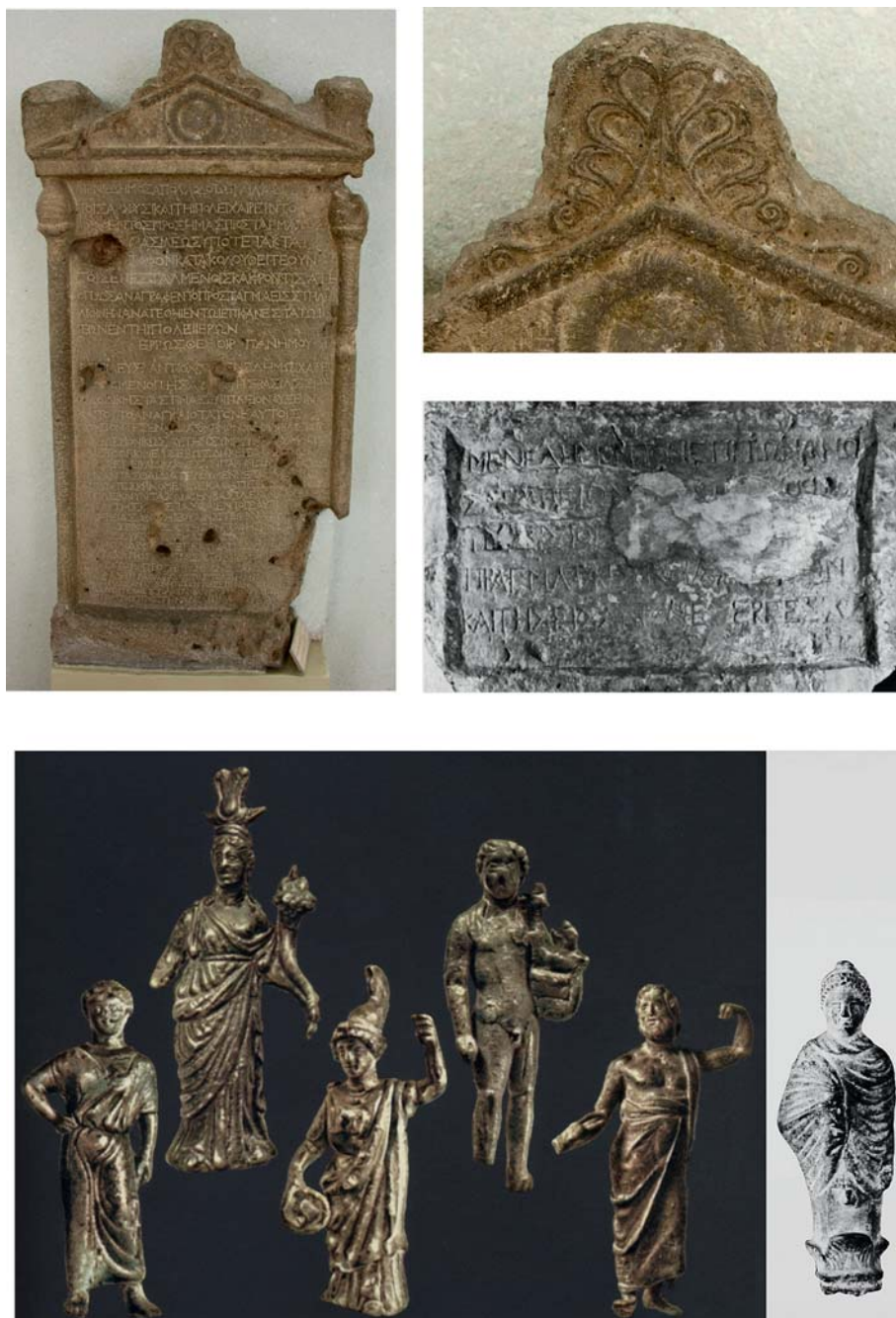
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Pl. 1. Aerial view of Nahavand with indication of the area where the excavations took place in 2005 and 2011.



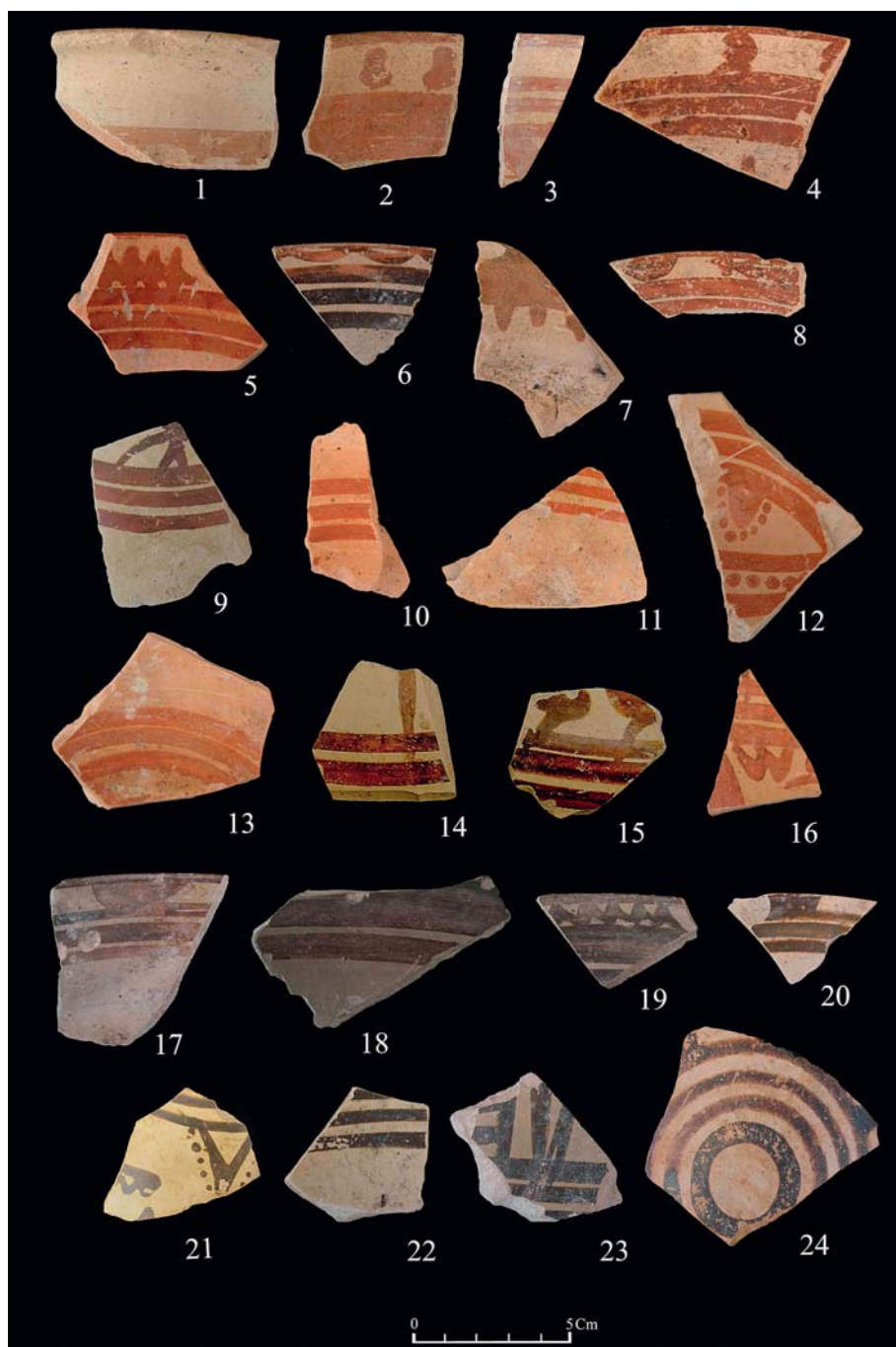
Pl. 2. Objects said to have been found in the vicinity of Nahavand: n° 1 & 2: silver vessels (Herzfeld 1928, Pl. A, B, D & E); n° 3: gold buckle (British Museum; after Curtis 1989: 71, fig. 18) & bottom: stone altar found at Nahavand (Ghirshman 1963: 19, fig. 24).



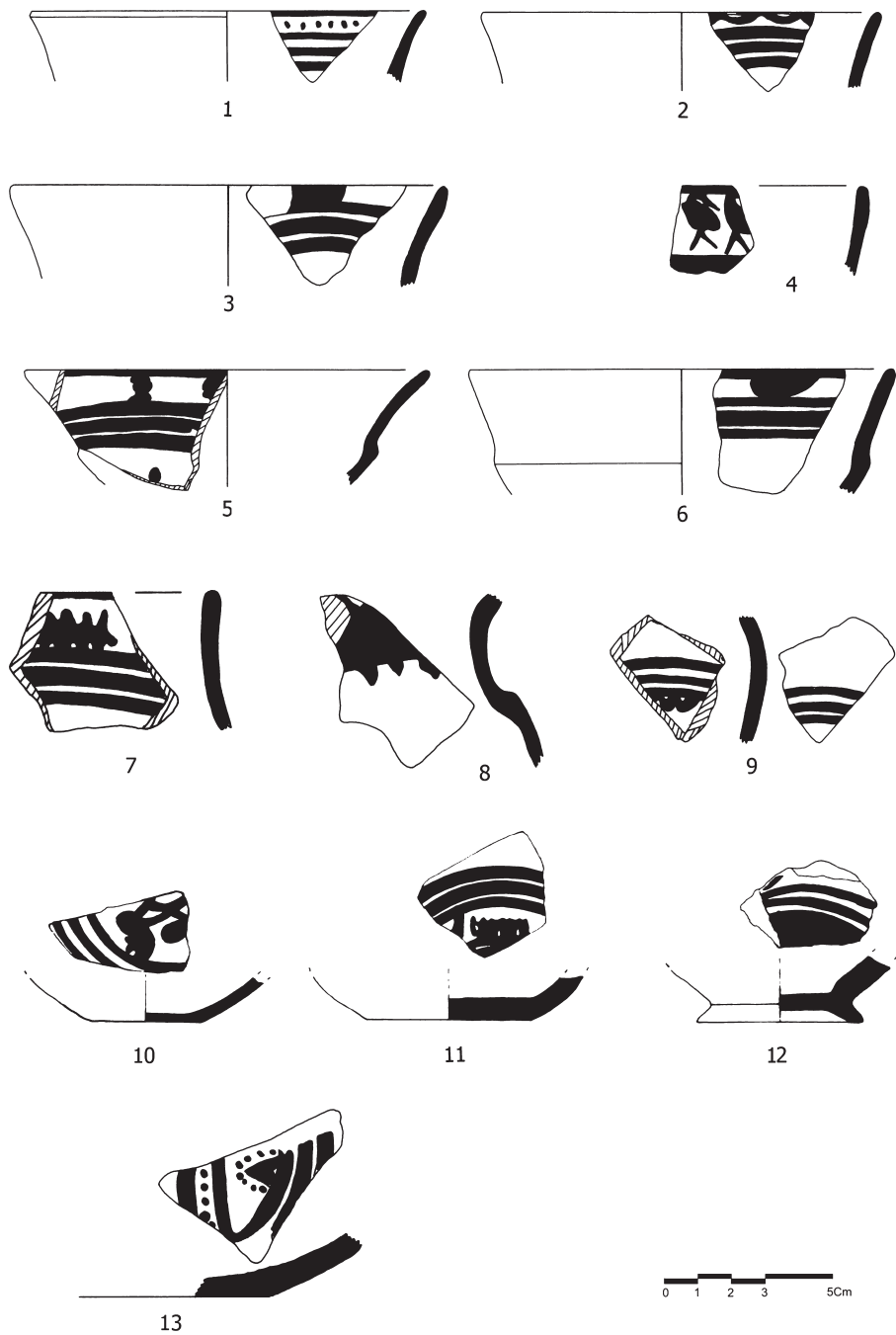
Pl. 3. Top: two Greek inscriptions found at Nahavand (left: photo authors; middle right: Rougemont 2012, fig. 67); bottom: six bronze figurines: five to the left: Ghirshman 1963: fig. 23; one to the right: Rahbar 1976: 253).



Pl. 4. Objects found at Nahavand by locals, prior to the excavations.



Pl. 5. Collection of “festoon ware” sherds found at Nahavand.



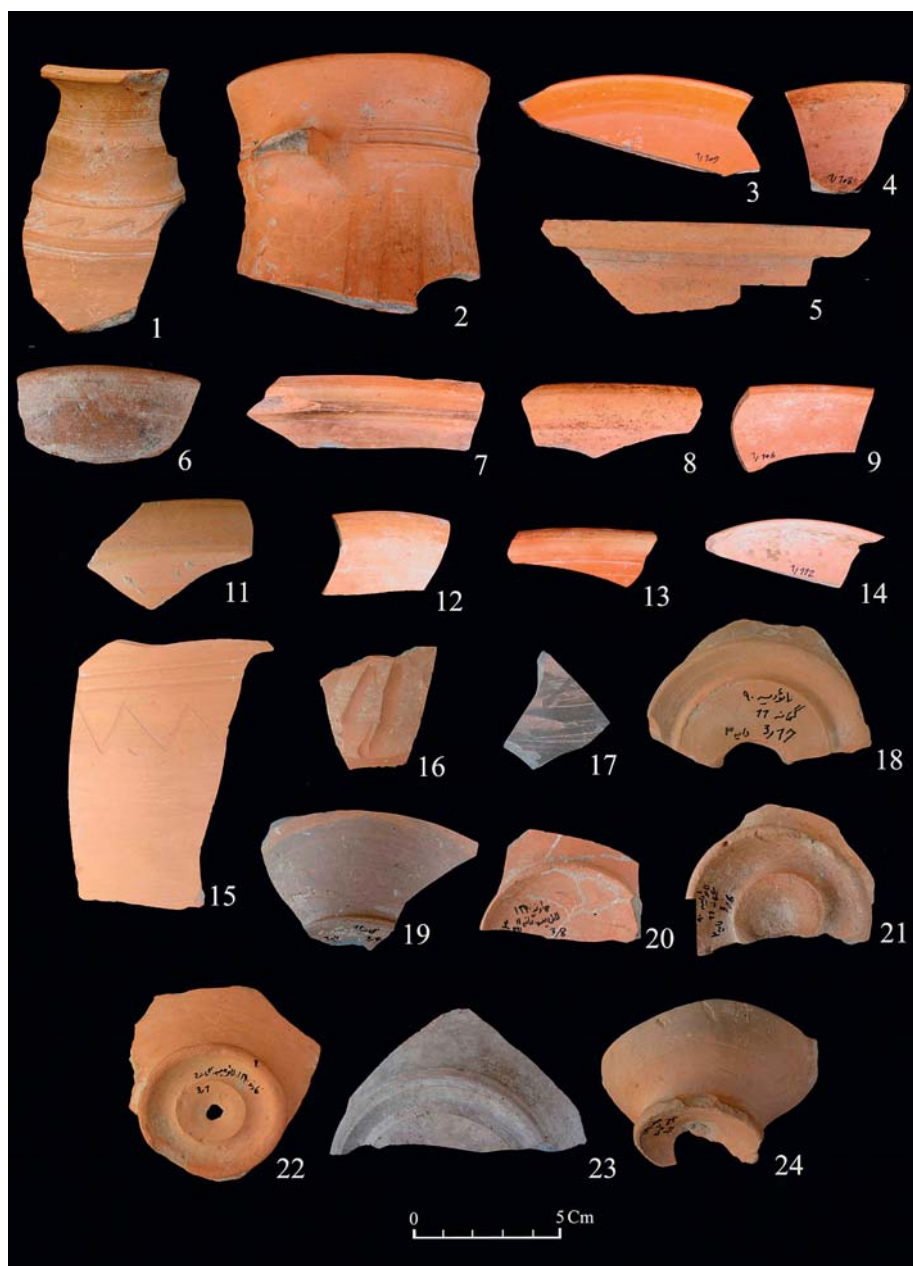
Pl. 6. Drawing of collection of “festoon ware” sherds found at Nahavand
(n° 2, 3, 5, 6, 7, 8, 13 = Pl. 5: n° 6, 20, 4, 17, 5, 7 & 12).



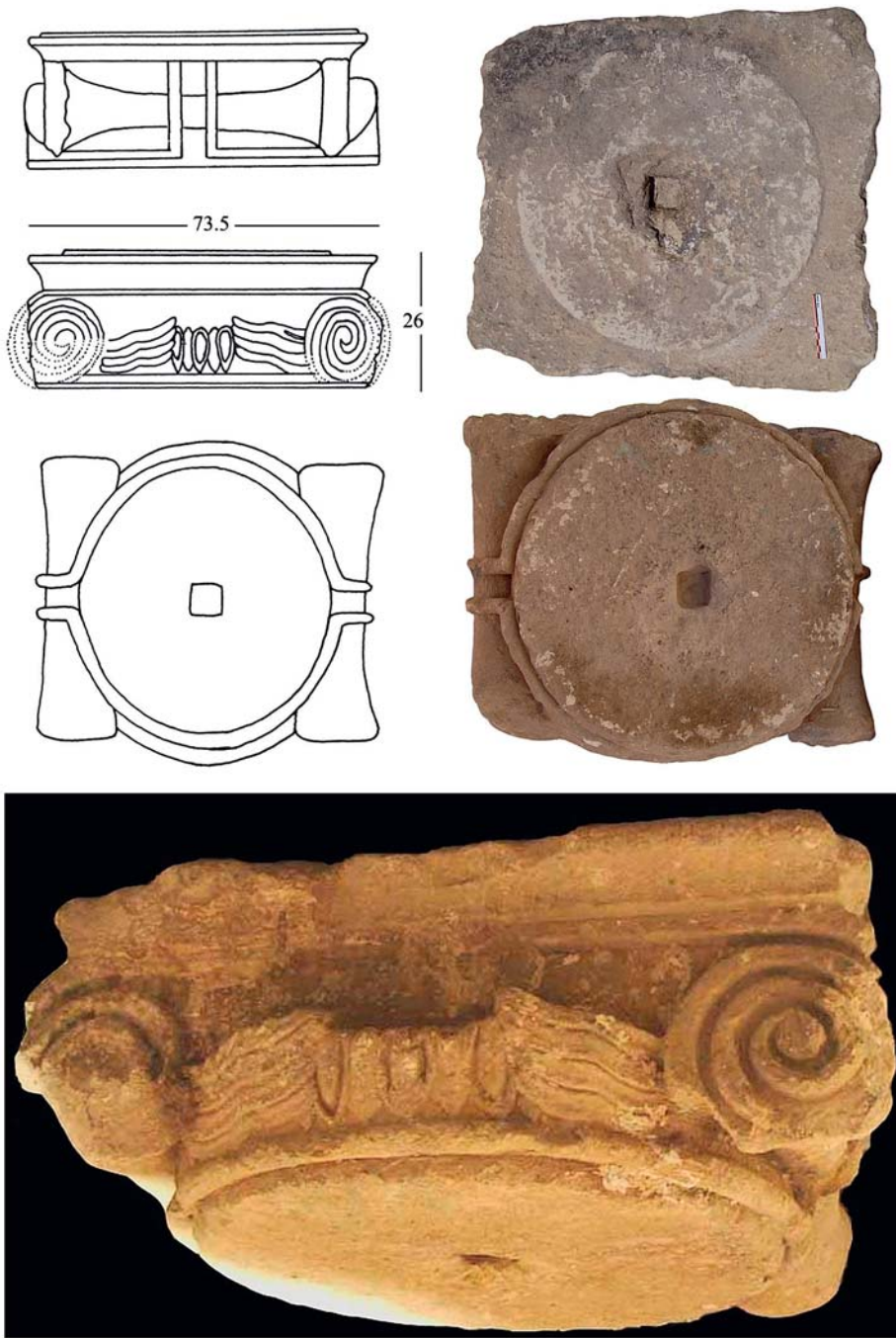
Pl. 7. "Festoon ware" found at Nahavand prior to the excavations
(Herzfeld 1933: Abb. 3 & Herzfeld 1941: Taf. XII).



Pl. 8. Pottery vessels from Nahavand. Top: painted feeding-bottle (?);
bottom: “clinky ware” jug from trench 1/2005.



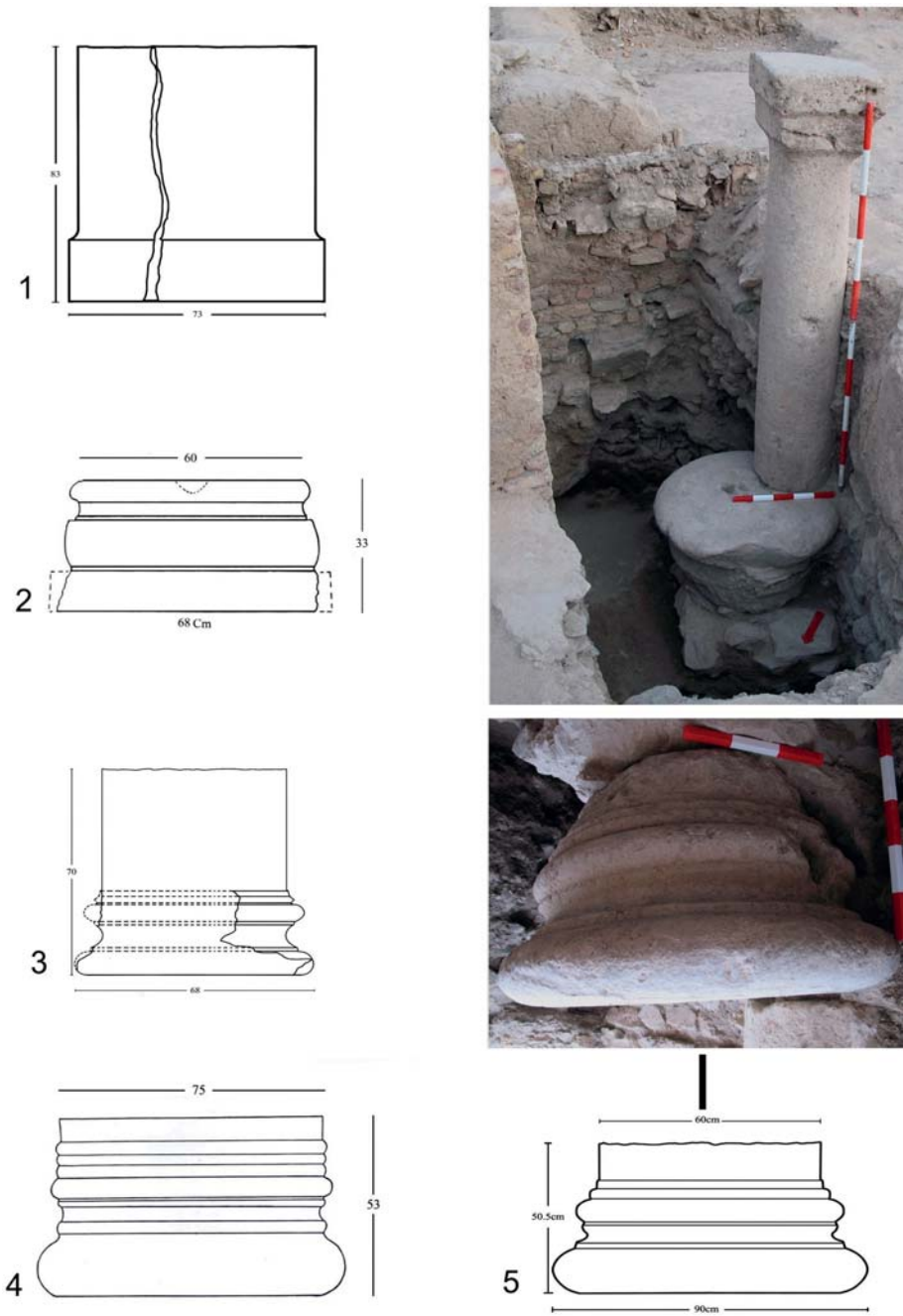
Pl. 9. Collection of “clinky ware” sherds found at Nahavand.



Pl. 10. Ionic capital discovered at Nahavand.



Pl. 11. Ionic capital discovered at Nahavand.



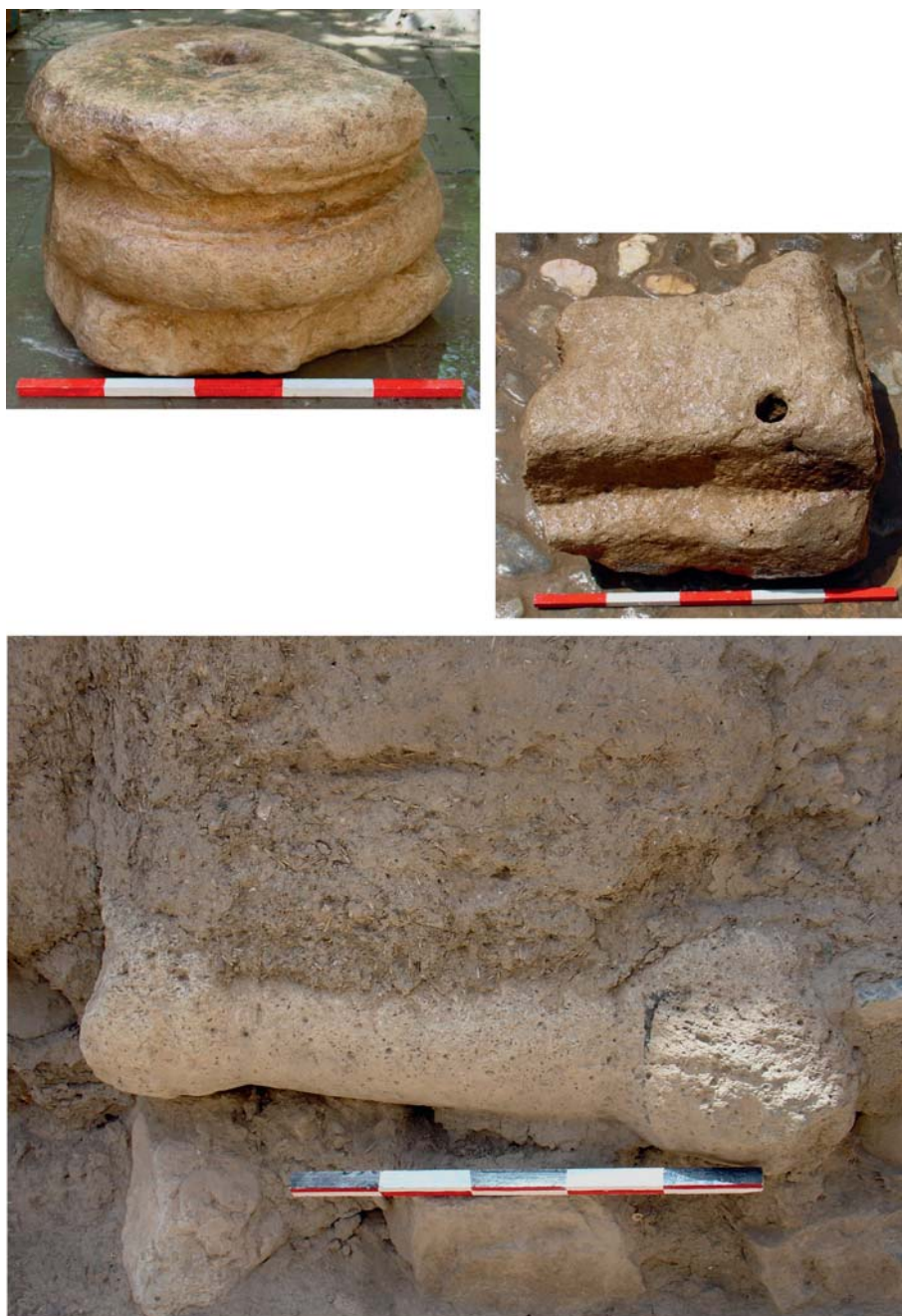
Pl. 12. Column bases discovered at Nahavand.



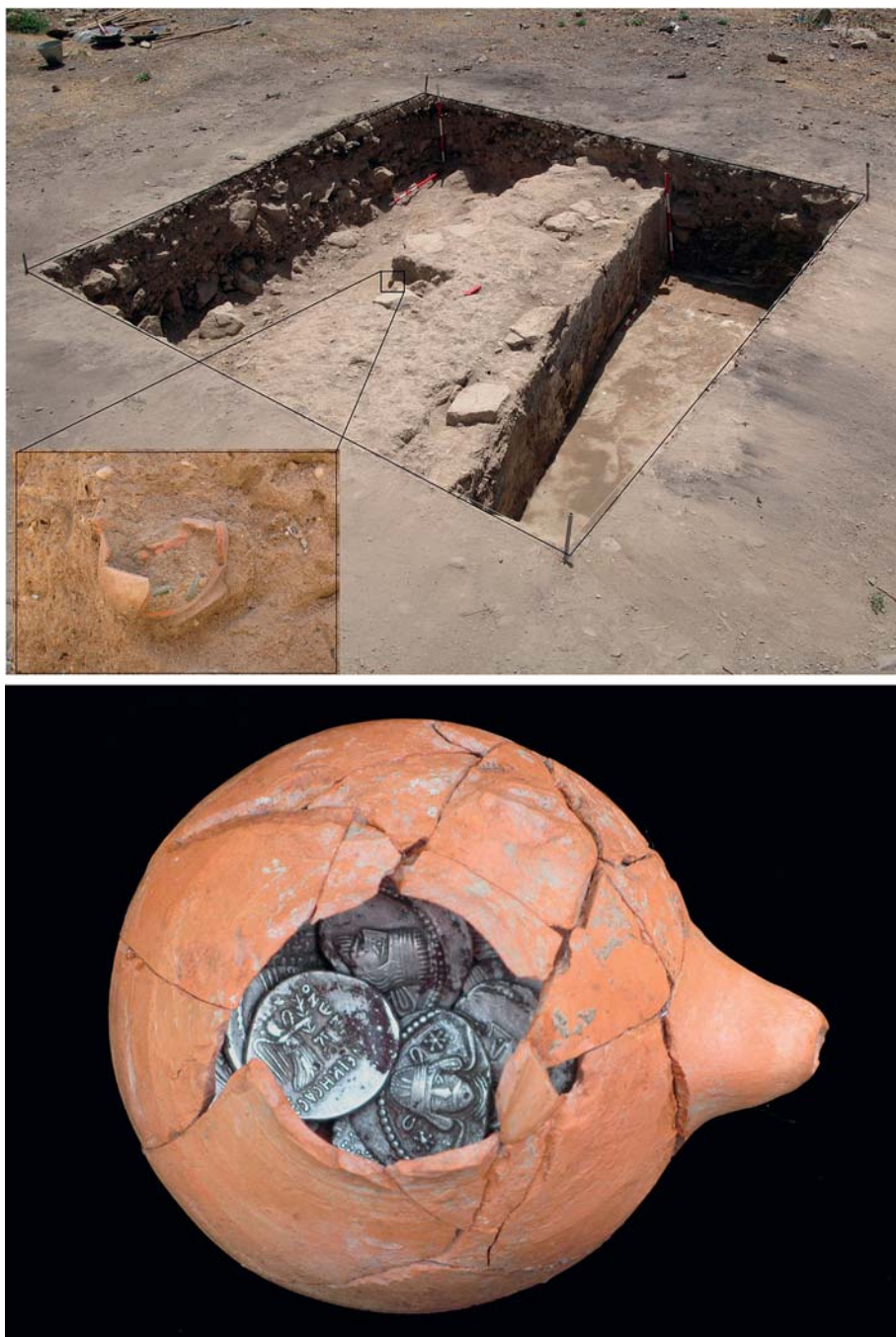
Pl. 13. Excavation trench 6/2011 with architectural remains at Nahavand.



Pl. 14. Detail of Pl. 13: reused architectural remains in trench 6/2011 at Nahavand.



Pl. 15. Architectural remains discovered at Nahavand.



Pl. 16. Trench 11/2011 with architectural remains and a small “clinky ware” spouted vessel containing eleven Parthian coins (see also Pl. 17).



Pl. 17. Eleven Parthian coins (1st. c. AD. to somewhere in first half of the 2nd. C. AD.; minted at Ecbatana/Hamadan) found in a small “clinky ware” spouted vessel in Trench 11/2011 (see also Pl. 16).



Pl. 18. Quarry at Nahavand.

A NEW PROPOSAL FOR IDENTIFYING THE KINGS REPRESENTED ON THE HUNG-E AZHDAR ROCK RELIEF*

BY

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Abstract: The well known Parthian rock relief of Hung-e Azhdar (or Hung-e Nauruzi) has been long debated because of its incoherent iconography and style. The interpretation of the relief, showing a bearded horseman proceeding toward four standing men, is disputed and even its chronology is still under discussion, the scene having been dated either to the early years of the Parthian period, in the second half of the 2nd cent. BC, or to the 2nd cent. AD. This paper focuses on the research recently carried out by the Iranian-Italian Joint Expedition in Khuzistan, which after the laser-scanning of the sculpted surface and excavation in the area where the relief is located provided evidence of re-sculpting and allowed to acquire new data on its archaeological context. The relief can be now considered as the emerging part of an open-air sanctuary continuously frequented since the Middle- or even Old-Elamite period and completely rebuilt in the Parthian period. The identification of the most important figures of the scene—the horseman and the central standing man—is also revised in the light of the data acquired during excavation and the publication of new series of Elymaean coins.

Keywords: Elymais; Hung-e Azhdar; Parthian rock carvings; laser-scanning; Kamnaskirids

In the valley of Hung-e Azhdar—also known as Hung-e Nauruzi—, about 17 km north of the modern city of Izeh, is located an important and famous Parthian rock relief, which, since it was ‘rediscovered’ by Sir Austin Henry Layard in the mid 19th century¹, progressively attracted the interest of several scholars because of its incoherent iconography and style.

* When not indicated, the pictures and figures in these pages are elaborated by the author and reproduced by courtesy of the Centro Ricerche Archeologiche e Scavi di Torino per il Medio Oriente e l’Asia (CST) and the Iranian Center for Archaeological Research (ICAR).

¹ A.H. Layard was the first European who saw the reliefs in the Izeh plain in 1841-1842 (Layard 1846), while the first mention of these works was made by H.C. Rawlinson in 1836, though he never visited the area as far as we know.

This well known piece of work, carved into the surface of an enormous and apparently isolated boulder, depicts a scene of homage or investiture in which a bearded and diademed horseman, followed by his attendant, proceeds towards four standing men (Pl. 1). The interpretation of the relief is disputed and even its chronology is still under discussion, the scene having been dated either to the early years of the Parthian period, in the second half of the 2nd cent. BC, or to the 2nd cent. AD.

Hundreds of pages have been masterly written about this work and there is no need to return in detail on it. The state of the debate will be briefly summarized with the purpose of proposing a new possible identification of the most important represented figures—the horseman and the central standing man—and interpretation of the sculpted scene, in the light of the recent research carried out in the area of Izeh by the Iranian-Italian Joint Expedition in Khuzistan². The aim of the expedition was the reconnaissance of the Parthian rock reliefs located in the Izeh plain, namely those of Hung-e Azhdar, Hung-e Yaralivand and Hung-e Kamalvand (belonging to the so-called group of rock reliefs of ancient Elymais)³, and the excavation of the area where the Hung-e Azhdar boulder is located.

This boulder is sculpted on two sides. On the side facing the valley is still visible a small and almost completely eroded relief in two registers, showing seven (?) figures in profile proceeding toward a sitting king or

² The expedition, supported by the Italian Ministry of Foreign Affairs and the Fondazione CRT, is co-directed by the present author and Jafar Mehr Kian and operates since 2008 within a Memorandum of Understanding signed between the CST and the ICAR. Other institutions involved in the project are the Polytechnic of Torino, the University of Torino and the Ayapir Cultural Heritage NGO. Preliminary reports appeared in the Journals 'Parthica' and 'Vicino & Medio Oriente' (Messina & Mehr Kian 2010; *eid.* 2011) and are yearly updated on the websites www.centroscavatorino.it & www.parthia.com. The preliminary results of the latter campaign at Hung-e Azhdar have been presented to the 7th European Conference of Iranian Studies (ECIS7), held in Krakow from September 7th to 10th, 2011. The final report is forthcoming in the series 'Monografie di Mesopotamia'.

³ The majority of the rock carvings known so far in Elam/Elymais can be dated to the Parthian period: Hung-e Azhdar, Hung-e Yaralivand, Hung-e Kamalvand, Shinbar, Kuh-e Taraz and Tang-e Sarvak (the latter in the modern province of Kohgiluyeh va Boyer-Ahamad) are just some of the sites where Parthian rock reliefs have been found and to these must be added the more recent discoveries in Kuh-e Mongast and Shrinow-Mowri, thus reaching a total of 14 monuments, still in situ, known to us today (see Messina & Mehr Kian 2010: 31-32, notes 8-13 for selected bibliography and, in particular, Mehr Kian 1997: 67-72; *Id.* 2001: 293-298 for the most recent and unpublished discoveries).

god, which can be dated to the beginning of the 2nd millennium BC⁴; on the hidden side of the boulder, that facing the mountain, is sculpted the great scene of investiture dated to the Parthian period.

The horseman and his attendant are shown in profile, while the standing men are in a complete frontal position. The latter wear belted tunics and baggy trousers with curved folds. The man in the centre of the relief appears to be the most important of them, being taller than the others and wearing a long diadem. Two small birds (eagles?) with outspread wings fly toward the horseman and the central figure, holding a wreath or a ring: the bird flying toward the horseman holds this object with its claws, that flying toward the central figure holds it in its beak⁵.

While the standing men in the right half of the scene are depicted in a frontal position and in Iranian dress, the horseman and his attendant are represented in profile and reveal Hellenistic reminiscences in their iconography and style. Even the carving seems different in the two halves of the scene, the horseman being sculpted in a relief higher than the standing men.

By comparison with coin portraits, the horseman is identified by many scholars as the Parthian king Mithradates I, honoured by an Elymaean sovereign and his retinue, being considered, as a consequence, a production of the second half of the 2nd cent. BC. This appears in contrast with the possible chronology of the figures in the right half of the relief, lined-up in a paratactic frontal position, which is generally supposed to be characteristic of a later period, not antedating the second half of the 1st or even the beginning of the 2nd cent. AD. This evident iconographic and stylistic contradiction leads to debate whether the two groups of figures were carved in different times, perhaps after centuries, or rather during the same period by sculptors of different schools (the sculptor of the horseman and of his attendant being still influenced by the Hellenistic tradition, the sculptor of the standing men being fully Iranian)⁶. Even the difference in the carving

⁴ Vanden Berghe 1983: 27, 103 suggests a date in the 20th-18th century BC by comparison with the contemporaneous cylinder seals, and reads the scene as the homage of some worshippers to an enthroned god.

⁵ Vanden Berghe 1963: 155-168; *Id.* 1983: 120-121; Von Gall 1969-70: 301-302; Schlumberger 1970: 40-41; De Waele 1975: 60; Downey 1977: 285; Harmatta 1981: 200-219; Vanden Berghe & Schippmann 1985: 32-38; Kawami 1987: 209-213; Mathiesen 1992: 119-121; Invernizzi 1998: 219-259; Messina & Mehr Khian 2010; *eid.* 2011.

⁶ According to some scholars, the right part of the relief is a 2nd-3rd cent. AD addition to a relief started by Mithradates I—the rider—but left unfinished by him, while others think that the different style of the figures is due to two different schools of sculptors. For

depth is debated, for some scholars think that it could be related to the re-sculpting of the scene while others suggest that it's only a swelling in the rock itself which makes the horseman appear to be in higher relief than the standing figures, the entire relief being executed at one time⁷.

These different interpretations completely change the historical framework of the sculpture and of the commission of the relief: the Hellenistic or early Parthian chronology allows to place the execution of the scene—or, at least, of the horseman and his attendant—within the events of the conquest of Elymais by Mithradates I in 140-139 BC, or rather in the following decades; the late Parthian chronology (2nd-3rd cent. AD) seems to refer to a production—or an addition (?)—, at the instance of a local ruler.

The aim of our research was to acquire new data on the Parthian rock reliefs in the area of Izeh, at Hung-e Azhdar, Hung-e Yaralivand and Hung-e Kamalvand, by the use of the most up-to-date reconnaissance techniques, particularly laser scanning, in order to verify whether new objective measurements of the sculpted surface could allow new interpretations of the reliefs, with regard to their execution and interrelations. This produced very interesting results, for even details invisible to the naked eye and undetected by photogrammetry clearly appeared in the 3D digital models elaborated after the laser scanner acquisition.

The preliminary elaboration of the data acquired at Hung-e Yaralivand revealed for instance traces of an inscription on the upper part of the sculpted scene, which has been deeply eroded and never reported in previous surveys⁸.

After the laser scanning of the Hung-e Azhdar rock relief a high resolution 3D model was elaborated: it consists of more than 7.600.000 points and allows a much more detailed examination of the sculpted surface and

the Hellenistic-early Parthian chronology of the horseman see Von Gall 1969-70: 308; De Waele: 1975, note 2; Vanden Berghe 1983: 120; Mathiesen 1992: 120. Schlumberger 1970: 40 considers the differences in the two halves of the relief as the expression of the eclecticism of the Graeco-Iranian art, while on the basis of stylistic criteria, Kawami 1987: 124 is convinced that the entire relief is to be dated to the late 2nd or the beginning of the 3rd cent. AD. Invernizzi 1998: 258 prefers a wider range, between the 1st and the 3rd cent. AD.

⁷ In particular, Kawami 1987: 212-213.

⁸ It is an Elymaean inscription in Aramaic language of the so-called south Mesopotamian group, very similar to the well known inscription at Hung-e Kamalvand, where it's still possible to read the expression '(...) son of (...) (Moriggi 2011).

an extremely precise measurement of the carving depth. Even if not completed, this innovative examination produced new data and revealed previously undetected anomalies and details on the sculpted surface. Not only the figure of the horseman is in higher relief than the four standing men, with a difference ranging in several points from about 15 to 25 cm, but even its background, in the left half of the sculpted scene, is systematically higher than the background in the right half. Unlike the assumption of some scholars that this difference must be related to the natural surface of the boulder, and in particular to a swelling in the rock, it must be stressed that the horseman overlaps a swelling which is located only in the lower central portion of the scene and precisely corresponds to the forepart of the horse and the horseman's legs, while no remarkable swellings are recognizable in other portions of the sculpted surface, particularly near the horseman's head and between the horse's head and the central standing man. On the contrary, in the upper portion of the relief the surface appears rather smooth and flat, and the natural conformation of the rock provides no justification for the higher relief of the background in the left half of the scene. Moreover, and more important, it clearly emerges that the two flying birds bearing two rings or wreaths—which are royal emblems—were carved within two rectangular niches, hollowed into the pre-existing background. Since the background level of the horseman's head was originally higher than the carved birds, these must have been added to the scene after its partial removal. This points out that (1) not all the anomalies in the carving depth can be related to the natural conformation of the rock and (2) they must be rather largely ascribed to the re-sculpting of the right half of the relief, where the four standing men are represented. The presence of the latter figures and the two flying birds are indeed strictly interconnected, for the birds, investing both the horseman and the central man with royal emblems, give sense to the whole scene as it appears to us in its final setting⁹. Also iconographic details previously undetected clearly emerged from the 3D model: for instance, there is a small circular object at the horsemen's earlobe, which seems what remains of a small circular earring (Pl. 2), while the headdress of the standing central man seems characterized by 2 small circles, almost completely eroded, above the round curled bunches at his ears (Pl. 3).

⁹ For a more detailed discussion of these evidences, see Messina & Mehr Kian 2010: 39-42.

It is a matter of speculation whether the operation of re-sculpting from which the two rectangular niches framing the birds originated was performed when centuries elapsed after the carving of the horseman or it was performed soon after; however the excavation of the area in front of the Parthian relief allowed to clarify the archaeological context of the boulder and provided indirect information on the possible chronology of the two halves of the scene.

During three campaigns of excavation, two structures in undressed stones, which revealed different phases, were brought to light. The major of these structures is a 9 m long low terrace east-westward oriented, the other is a smaller rectangular platform placed at the foot of the sculpted boulder, which was rebuilt at least three times and finally aligned with the Parthian relief. This complex can be interpreted as a cult place, given that the findings can be classified as depositions by comparison with similar materials found at Bard-e Nechandeh and Majid-e Sulayman¹⁰, and also the typology of the structures—a low terrace and a platform—is coherent with this interpretation, for they seem what remains of a natural open-air sanctuary conceptually similar, even if smaller, to that of Khul-e Farah, which is less than 9 km away.

Most of the findings have been discovered in non relevant layers and span from at least the Middle- or even Old-Elamite to the Parthian period, but clearer indication on the chronology of the most recent structures is provided by the radiocarbon date of charcoals found in superficial layers in contact with the upper platform, which span from the half of the 2nd cent. BC to the last quarter of the 1st cent. AD¹¹.

In this context, the carving of the great Parthian relief could be considered as a kind of dedication made in an ancient well known sanctuary. If this interpretation is correct, the great Parthian scene of investiture is conceptually equivalent to the sculpted slabs dedicated in other important sanctuaries of the same period and area (Majid-e Sulayman and Bard-e Nechandeh): this seems confirmed by the presence at the foot of the Hung-e Azhdar boulder of other Parthian dedicatory carvings loose on surface¹².

¹⁰ Among other findings it must be stressed the discovery of a high number of iron and stone arrowheads and several bronze bells.

¹¹ The radiocarbon date was calibrated at $\pm 1\sigma$ in the laboratory of the Department of Science of Materials (DSM), Università di Milano Bicocca.

¹² Kawami 1987: pl. 16.

Even if there is no direct stratigraphic relation between the structures at the foot of the boulder and the sculpturing of the scene on its surface, it seems very probable that the dedication of the Parthian relief fell into the same period of the sanctuary's most recent rebuilding, between the half of the 2nd cent. BC and the 1st cent. AD. This dedication must have happened at the instance of a sovereign celebrating an important event in a reputed local sanctuary.

Was this sovereign Mithradates I?

His reign falls within the period defined by the radiocarbon analysis, even if at its lower limit, but after the publication of new series of Elymaean coins and their revised chronology, other indications on the identity of the horseman and the central standing man emerge from an iconographic study.

If the general aspect of the bearded and diademed horseman clearly follows the Hellenistic model of 2nd cent. BC Arsacid coin portraits, a model also echoed in 1st cent. BC Characene issues (Pl. 4a)¹³, iconographic details such as the cloak folds on the chest and the earring rather recall the draped busts of later Kamnaskirid sovereigns on local Elymaean issues of the first half of the 1st cent. BC. Though in a different style, these coins portray precisely a bearded and diademed sovereign in left profile who, unlike Mithradates I on his coins, wears a circular earring and a cloak covering his neck and chest, and partly hanging from his shoulder (Pl. 4b). The type originated in the first decades of the 1st cent. BC, with Kamnaskires II—or, more probably, III—(ca. 82-75 BC), the husband of the queen Anzaze, and was followed by the several Kamnaskirid sovereigns who succeeded him up to the turn of the AD centuries¹⁴. The seriation of these coins has been revised in recent times¹⁵ and, even if some uncertainty remains about the exact number of Kamnaskirid sovereigns striking coins and ruling in the 1st cent. BC, there can be little doubts that particularly the issues of the first half of the century, onto which, interestingly, even the forepart of a horse usually interpreted as a mintmark can be reproduced, find close comparison with the horseman on the Hung-e Azhdar rock relief (Pl. 4c)¹⁶. The

¹³ For instance a coin of Tiraios II struck in 78-77 BC (Vardanian 1999: 122, fig. 2:1).

¹⁴ Issues of the later Kamnaskirids were struck in different mints, even in Susa and Seleucia-on-the-Hedyphon (see in particular Hansman 1990: pl. 1:1-2; Vardanian 1999: fig. 1:3; van't Haaff 2007: 63-81).

¹⁵ See in particular Hansman 1990 and van't Haaff 2007.

¹⁶ Hansman 1990: pl. 1:2 and van't Haaf 2007: 71, type 8.3.

sovereign portrayed on the latter coins is identified as Kamnaskires IV—or, less probably, V—(ca. 62-58 BC) and it has been suggested that the horse forepart could be a mintmark derived from ancient Seleucid prototypes (possibly from Susa or the not yet located city of Seleucia-on-the-Hedyphon)¹⁷. On the basis of some issues overstruck with a small Nike countermark near the king's bust, it has been argued that Kamnaskires IV was one of the Kamnaskirid sovereigns who temporarily regained control over Susiana from the Arsacids and celebrated in this way his precarious victory¹⁸. On the other hand, even his predecessor Kamnaskires III, the husband of Anzaze, celebrated the reassertion of the Kamnaskirid control over Elymais, being the first of the later Kamnaskirid sovereigns, as far as we know, who issued coins again after a gap of about half a century. It follows that even the rock relief dedicated in the sanctuary of Hung-e Azhdar, initially representing a king mounting a horse and majestically proceeding to right with his attendant, could have been commissioned and sculpted in the same celebrative context also attested by several coin series of the former sovereigns. In any case, it appears that Mithradates I was hardly involved in the commission of the work, for this must be rather ascribed to one of the later Kamnaskirids ruling in the first half of the 1st cent. BC.

This said, the re-sculpting of the right half of the relief seems even more probable, for the central standing man's iconography finds clear comparison with coin portraits of Kamnaskires-Orodes, struck more than 150 years later, and far out the chronological limits defined for the sanctuary most recent rebuilding. On the several series issued in the first two decades of the 2nd cent. AD the facing bust of the king shows the same full beard, moustaches and round curled bunches on each side (Pl. 5a)¹⁹, and even the same elaborated way of tying the long and fluttering diadem, which repeatedly encircles his head and has sometimes two knots at his temples recalling the small circles above the curled bunches on the rock relief (Pl. 5b). Given that Kamnaskires-Orodes was one of the early 2nd cent. AD Elymaean sovereigns who struck coins both in the mints of Seleucia-on-the-

¹⁷ See in particular Hansman 1990: 1-4, and van't Haaf 2007: 12-13.

¹⁸ Hansman 1990: 4 quoting Sellwood in note 38, and van't Haaf 2007: 14.

¹⁹ See issues and chronology of Kamnaskires-Orodes in Augé, Curiel & Le Rider 1979: pl. XVI:2370-2371; Hansman 1990: pl. 1:5; Vardanian 1999: 121-125; van't Haaff 2007: 94-105.

Hedyphon and Susa, some scholars think that, as a few of his predecessors had already done, he could have regained the control of Susiana as well, at least for a period²⁰. If so, the king may have commissioned the addition of his figure and retinue on the tableau even celebrating the achievements of one of his predecessors.

On the basis of these considerations, it may be supposed in conclusion that one of the later Kamnaskirids, possibly Kamnaskires III or IV, dedicated a relief in an ancient local sanctuary in the first half of the 1st cent BC, probably on the occasion of its most recent rebuilding or soon thereafter, and that in the first decades of the 2nd cent. AD, another sovereign, Kamnaskires-Orodes, partially re-sculpted the original scene, adding the standing figures in its right half and the flying birds. The commission of both the sculpting and re-sculpting of the scene can be explained in a celebrative context of the Elymaean kingship and, whether considering the hypothesis proposed above correct or not, historical reasons for these different and subsequent celebrations appear to be related to regional-scale events.

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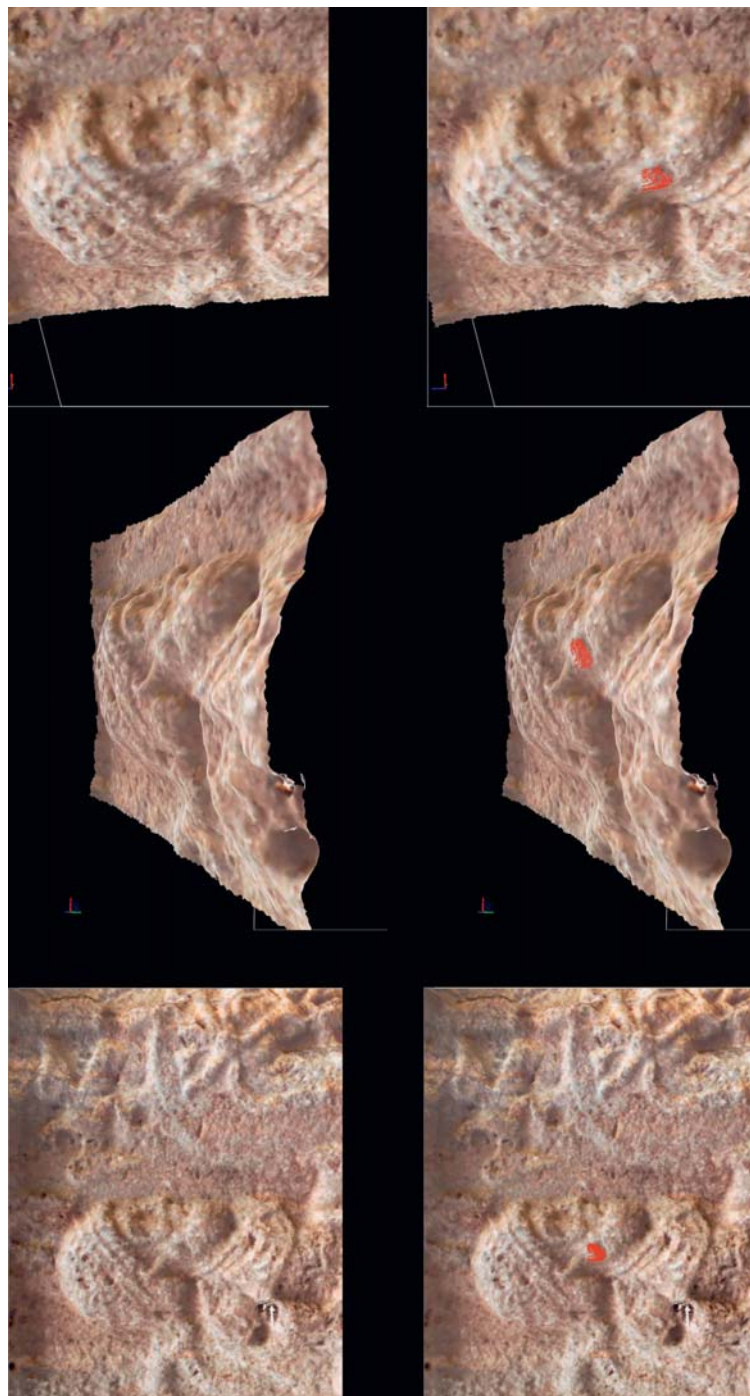
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²⁰ See in particular Vardanian 1999: 125-127, and van't Haaff 2007: 26-28.

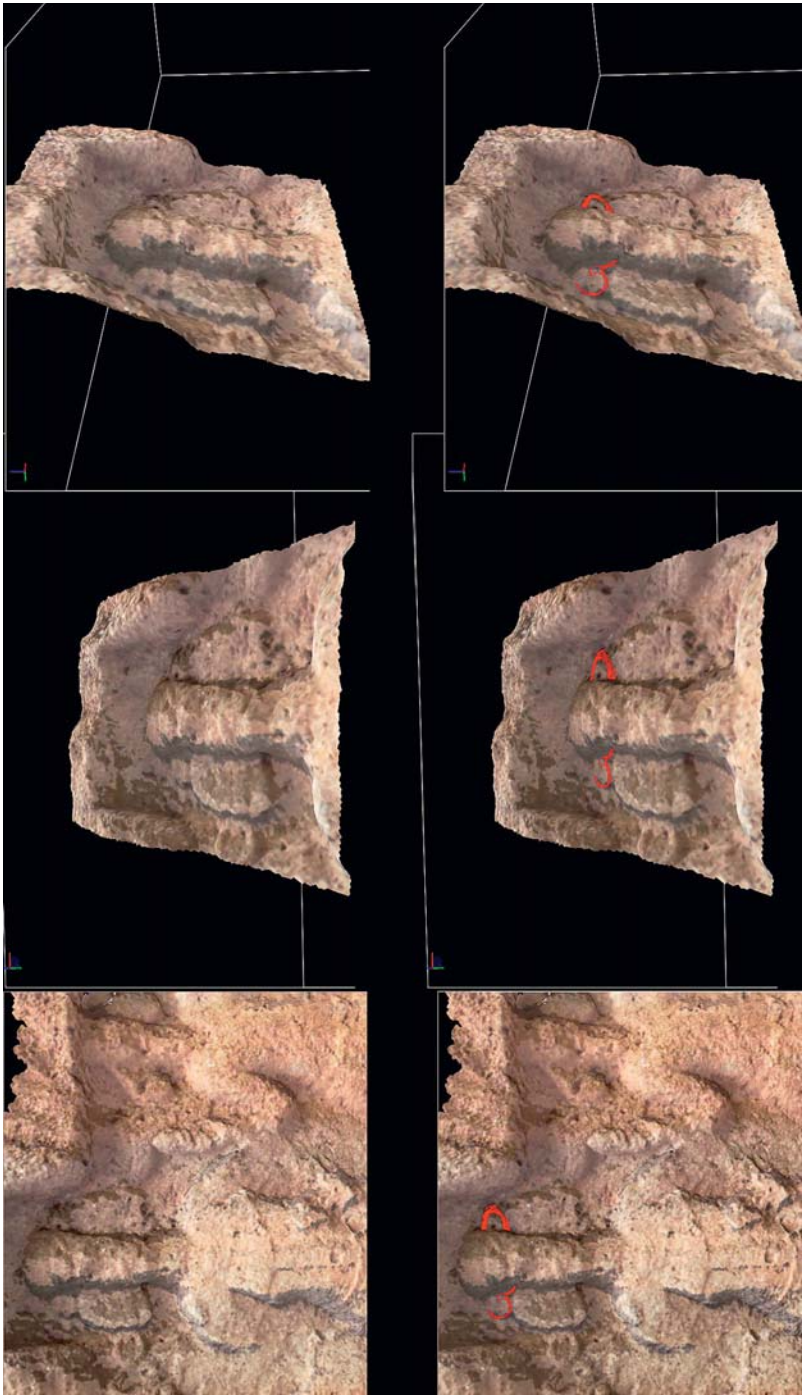
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Pl. 1. Hung-e Azhdar. Orthophoto of the Parthian rock relief.



Pl. 2. Hung-e Azhdar. 3D digital model of the Parthian rock relief. Details of the horseman's head (above) and progressive sections of the circular object at his earlobe (below).



Pl. 3. Hung-e Azhdar. 3D digital model of the Parthian rock relief. Details of the standing central man's head (above) and progressive sections of the circles on his curled bunches (below).



A



B



C



Pl. 4a. Coin of Tiraios II (after Vardanian 1999: fig. 2:1); b. Coins of Kamnaskires IV (after Hansman 1999: pl. 1:2 and van't Haaff 2007: type 8.3); c. Comparison between the above coins and the Hung-e Azhdar horseman's head.



A



B



Pl. 5a. Coins of Kamnaskires-Orodes (after Augè, Curiel & Le Rider 1979: nos 2370-2371); b. Comparison between the above coins and the Hung-e Azhdar standing central man's head.

THE MIDDLE PERSIAN AND PARTHIAN INSCRIPTIONS ON THE PAIKULI TOWER. NEW BLOCKS AND PRELIMINARY STUDIES¹

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Abstract: The Pāikūlī inscription celebrates the victory of the Sasanian Emperor Narseh (293 – 302/3 AD) over his nephew, Wahrām III, in the dynastic war which followed the death of Wahrām II. It was built on the spot where Narseh met the nobles and notables of the Sasanian Empire, who had come to the border of Asōrestān to pay him allegiance. The text is almost identical in its two versions and can be divided in two main parts, the first describing the events of the dynastic war, the second containing a long list of nobles and notables who sided with Narseh. The remains of the tower rise in a beautiful Zagros valley on top of a small hill overlooking the modern village of Barkal at the foot of the Pāikūlī pass, not far from the town of Darband-i Khan. Narseh’s inscription is one of the most important surviving primary sources for the history of the Sasanian dynasty, though its value as an historical document is considerably decreased because of

¹ Many persons of good will have helped us to establish the presence of the Italian Archaeological Mission to Kurdistan and previously to develop our cooperation projects. The authors wish to thank Malaawat Abubaker Othman Zengin, Director General for Antiquities of Iraqi Kurdistan, Kamal Rashid Rahem (Director of Antiquities of Sulaimaniya) and Hashem Hama Abdullah (Director of the Museum of Sulaimaniya) for their constant support to our project. Special thanks are due to Angela Bizzarro, in charge of the photographic documentation, who carried out together with Gianfilippo Terribili a specific documentation campaign on the materials kept in the Museum of Sulaimaniya; she digitally processed all photos and drawings accompanying this paper checking the compatibility of blocks one with the other. We also wish to thank all those who until now took part in this project, on the Iraqi side Pakshan Mohammad (Supervisor), Mohammad Salih Karem (Geologist), Dlewa Abdullah Ali (Geologist), Mahabad Amin (Archaeologist), Bykhal Abdullah (Archaeologist), Shahlal Omer (Accountant), and Karwan Abdulrahman Omer (chemist-conservator) and on the Italian side Simona Artusi, Pierfrancesco Callieri, Luca Colliva, Barbara Faticoni, Roberta Giunta, Dario Marletto, Giuseppe Morganti, Samuele Ranucci, Fabrizio Sinisi, Stefano Tilia and Alessandro Tilia of Studio 3R, who all at different stages worked at our project in the Museum of Sulaimaniya. Special thanks are due to the Italian Ministry of Foreign Affairs, to the Italian Development Cooperation, to the “Sapienza” University of Rome and to the Soudavar Foundation who generously supported this project.

its fragmentary state of preservation. From 2006 onwards an Italian team has been investigating the monument, leading extensive surveys in the valley and studying the materials now kept in the Sulaimaniya Museum, both activities continuing to the present day. This led to the identification of a total of 19 new inscribed blocks (11 MP and 8 Pth.), which are presented in this article.

Keywords: Iran, Sasanian Dynasty, Pāikūlī Inscription, Narseh, Wahrām III, Middle Persian, Parthian

In this paper we are going to present a number of new blocks belonging to the Middle Persian and Parthian versions of the Paikuli (Pāikūlī) inscription, which have been identified in recent years. From 2006 onwards an Italian team has been documenting and studying 106 inscribed stone blocks and fragments, all coming from the Paikuli tower and the area around it, which are presently kept in the Museum of Sulaimaniya (Slemanī) in the Kurdish region of Iraq.²

Our present work aims at integrating Humbach and Skjærvø's edition, itself based—from the point of view of methodology as well—on Herzfeld's materials and critical works, and not at replacing it completely, since many of the readings and reconstructions proposed in their joint work are still perfectly valid.³ In our work we have applied the methodology developed by earlier scholars, systematically comparing the Middle Persian and the Parthian version of the inscription, collating, so-to-say, the two versions in order to obtain a continuous narration as complete as possible. Though not entirely orthodox, this methodology is justified by the fact that both versions of the inscription present vast lacunae, since almost a half of the blocks are today missing. Moreover, this approach is also defensible since the texts of the two versions run parallel, with only minor variants.

Here we are able to tentatively position the main new blocks in the textual framework of the inscription, including all new clearly recognized

² For a recent presentation of the *status questionis* and of the activities of the Italian cooperation mission concerning Paikuli see Cereti-Terribili 2012.

³ See Humbach-Skjærvø 1978-1983 and Herzfeld 1914, 1924 and 1926, though the reconstruction reached by Herzfeld in his later years can only be seen in his archives kept at the Freer Gallery at the Smithsonian Institute in Washington D.C. In this respect, the attentive reader will notice that in some passages we have kept Skjærvø's translation, given that in our opinion there was no reason to change it.

Middle Persian and Parthian blocks, but still lacking a significant number of blocks and fragments which are either too small or too damaged to be positively identified at the present stage of research. Nevertheless, we aim at completing a new edition of the inscription, presenting all relevant textual, historical and material data.⁴

A total of 11 new Middle Persian blocks or fragments belonging to previously partly known blocks, have been identified. Moreover, we propose to classify as E16\17 a very worn block, though this identification cannot be taken for sure. The identified blocks are:

C2 of which only two lines survive; D1bis, being the upper left corner of block D1, a block known to Herzfeld in a partially damaged form and fitting well with what we suggested to identify as block D2,⁵ E6 and E8, though the distribution of the text on these two blocks appears different in respect to what suggested by Prods Oktor Skjærvø; E16\17 and E17\18; F18; G1a, being a fragment of block G1, another fragment of which was previously known; G14 (or possibly G15), H5.

Eight newly recognized Parthian blocks have also been recovered, while we have not yet been able to place another three blocks, all belonging to the Parthian version, in the inscription's structure. Identified blocks are:

Block a5, rather well preserved, carrying six almost complete lines; a12, almost entirely readable, exception made for a small lacuna in the first line and a few minor gaps; a13 which is a rather slim block, carrying six lines as the preceding ones, almost entirely preserved; c5 also carries six lines, the first and especially the last of which are damaged, the others still satisfactorily readable; c9 is unfortunately very worn and so is c12; five lines of e6 are perfectly preserved, but the first line of the block is almost unreadable; finally, f1 which is quite important to understand the architectural design of the monument, though the few letters still readable do not add much to our comprehension of the content matter of the inscription.

⁴ The Paikuli monument and its inscriptions, together with the history of Herzfeld's travels to and around Paikuli, were the subject of the Iraj Afshar Lectures held by Carlo Cereti at California State University, Fullerton on November 1, 2008.

⁵ Comparing blocks D1 and D2 with Humbach's suggested reconstruction in the Synoptical tables, we would suggest that D1 was larger and D2 comparatively smaller.

Middle Persian blocks

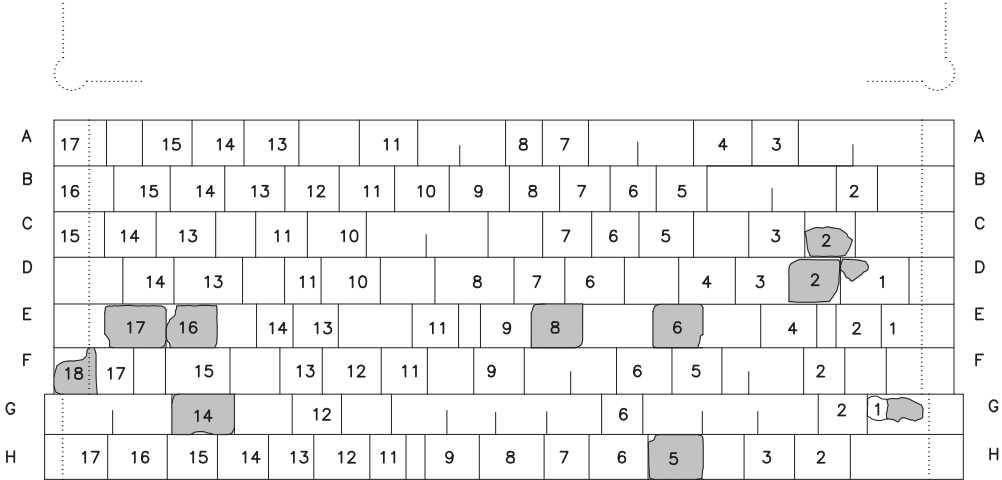


Fig.1. Graphic reconstruction of Middle Persian version, based on the philological study of Humbach and Skjærvø (1978-1983, 2, p. 14), the eleven new blocks are marked in grey.

PK13 ⁶	C2
1	
2	
3	]h(cw)y [...](lš)[
4	]AMT LNE nzdy[
5	[ʾwh](l)[mz](dy) mgw(pt)[
6	

PK20	D1bis
1	[OŠMEN]d A(YK)
2	]('y)w YA(T)[WN-]
3	[YM](LL)[WN]
4	
5	
6	

⁶ [] Reconstructed, () uncertain, l- or -l the word begins in the preceding block or continues in the following one,] or [a fracture of the rock, while [...] marks a lacuna.

PK21	D2
1	[LN](E) M(N) ʾ(l)mn[y ʾ-]
2	[...]t A[H](R)[N] H(T) s[kʾ]-ln
3	[...] [M](E w)hwnʾm ʾ(p)-lstpty
4	[.....](t M)LKA w my(šʾ)-ln
5	[ʾ](wnd)ykn MROHY (P)[W] ⁷ -lN
6	[.....](w)[.....] [K]ON p[r]-lʾc

PK31	E6
1	[... ...](ʾ)[...]
2	-ry štrdstn (YT)-l[YBWN]
3	štry-hwtʾdyhy
4	]l) W dšny LA YHW[
5	] (OL BBA) ZY (LNE)[
6	] (ʾ)s(y) ⁸ M[E] (whwn)[

PK32	E8 ⁹
1	LK (ʾp)[y]n(y)[dʾpk][...]
2	[M]l-LKA (AYK)[...]
3	-(B)WN W YDOYT(N)t[...]
4	[w]l-hwnʾm OBY(DWN)t [...]
5	-hry ¹⁰ š(t)[rdʾly][... ...]
6	[y]z(dʾn) ¹¹ [...]L [...] [

⁷ The reading is here made more difficult by the presence of a few cracks on the rock. Given the context—compare § 23 (B10-11,06) and § 38 (D5-6,03)—the only possible reading is (P)[W]-N, the loop of the P being still partly visible.

⁸ Possibly the final letters of a word such as gʾsy “throne, place (?)” B13,03; G6,02; or pʾ[tp]lʾsy “punishment” E13,06.

⁹ The left part of the inscribed surface belonging to block E8 is completely abraded, making it difficult to determine whether it was immediately adjacent to E9. However, if one looks at lines 2, 3 and 4 of the two blocks the impression is that they were probably not contiguous. Given the wide lacuna in which both this block and the one which we have labeled E6 fall, it is not possible to unequivocally determine the succession and numbering of blocks E5-8(bis).

¹⁰ Possibly to be reconstructed as [bgšhpw]hry, cfr. Pth e13,01. The word following this anthroponym should probably be read št[rdʾly] “land-holder”, alternatively one could suggest št[rp] “Satrap”, also attested in the Paikuli inscription, which would better fit the rather small lacuna. A reading št[rstn] does not seem to fit the meaning, while other alternatives (ŠT[RA] “side”, št[ry] “land, realm”, ecc.) are impossible either syntactically or semantically.

¹¹ Only traces of the upper part of the three letters dʾn (?), survive, cfr. Pth e12,02.

PK35	E16\17
1	[... ..] (BBA) [
2	[s](k)'n BBA (MN) [
3	AY(K yzd')[n] (GD)[E] (W št)[ry]
4	[... ..]W [LW](TE) ¹² bgš(hp)[whry]
5	b(sty W špšy)l(')[l]-ly ¹³
6	H(NA) [... ..]š ANE M[

PK36	E17\18
1	]š)p[...] HWE
2	['whrm](z)d(y ZY) wr(')[c] ¹⁴
3	(w)[...]t(y?) nwky (klp)[kyhy?]
4	] (W)N n(rs)[hy ZY] bgy ZY [...] ¹⁵
5	-y ¹⁶ [...](?) W Š(M) [...](kd?) (n)[
6	] [... ]L(WNn) ¹⁷ (W)m AD(Y)[N]

PK44	F18 ¹⁸
1	L-[KWM]
2	-y W Š]P(Y)[R] ¹⁹
3	]š)t(y) ²⁰ A[Pšn]
4	(')yw YM(LLW)Nt
5	[M](LKA)n MLKA

¹² The possible alternative reading - (ZNE) - does not seem to fit the context, since it is not usually used before personal names.

¹³ For MP *špšy'l'y* Pa *spsyrdar* see ŠKZ §48 (Huyse 1999, I: 60; II: 165): *Pābag ī šafšērār*.

¹⁴ The anthroponym *Ohrmazd ī Warāz* is attested in the Paikuli inscription in a7,06 and C14,04.

¹⁵ The faint surviving signs seem to support a reading *n(rs)[hy]*, though other interpretations are certainly possible.

¹⁶ We have considered this to be the final letter of MP (*špšy*)l(')ly, possibly found at the end of E16\17,05. Should this be so, it would represent the only surviving link between the two blocks.

¹⁷ To be reconstructed as [YKT]LWNn "I shall kill", corresponding to *kwšt* found in Parthian e4,03.

¹⁸ Probably between block F17 and the newly discovered F18 there was another fragment, that we may call F17bis. In fact when looking at the old photo of F17 (Herzfeld negatives 2689, Humbach- Skjærvø 1978-1983 vol. I, *Suppl.* plate 28), one can clearly see that the block was broken roughly in half, the second part missing.

¹⁹ Hypothetical reading, see Humbach-Skjærvø 1978-1983, 3.1: 57.

²⁰ The more probable reading is [h'mw](š)t(y), confirming Skjærvø's [h?]m[w]št for Pth e12,05 (Humbach- Skjærvø 1978-1983, 3.1: 58) against Herzfeld's (1924: 110-11) reading *msyšt*.

PK45 + PK46	G1 ²¹
1	
2	
3	
4	] (H)NA CB(W) | [ 'p](l)'(s)[y]
5	[š](t)ry ADYN drwd(s)tly
6	
7	

PK49	G14\15
1	ME OLEšn ORHYAn ('n)[
2	d'sty OBYDWNt W 'twky H(WE) ²²
3	[OR]l-HYAn PWN LOYŠE GDE SGD(E)
4	AYK yzd'n swty ADYN plk's
5	krty 'yny'tn AYŠ hmgwn(k)[y]
6	štld'I'n W [B]L[B]YTAAn W L(BA)[n]
7	[... ..]

PK52	H5
1	] [štld'n]'n [
2	M(K)BLWNt kr(p)[kyhy?] (YH)W(W)N W OD
3	-(b)ly W w(l)'c [...l(y?)] ²³ (ZY) l'm'n
4	[Z]l-Y dwnb'(n)cy ²⁴ MROHY W lzm-l'gwdy
5	p'tk(wsy) (PWN pndy) W p-l['dy]sy ²⁵

²¹ The readings found in the new fragment G1a suggest that there never was a Block G16, see the correspondence between f14,05 and G1,05. | indicates here the separation between the two fragments.

²² The reading **HWE** is justified by comparison with the different occurrences of 'twky in this inscription. Thrice is this word followed by a verbal form: F15,04 (**d'stny**) ; G6,03 (**HWE**); G12,07 (**HWE**). In all other occurrences the following word falls in a lacuna.

²³ Probably a compound name. Possible candidates are *Warāzpuhr* (**wr'cpwhly**\ **wl'cpwl**) and *Warāz-Pakur* (**wl'cpkwly**) on which see Gignoux 1986: 174.

²⁴ Probably a defective spelling, in ŠKZ MP 32 we find **dwmb'wny** (cf. Huyse 1999, 2: 138—with earlier bibliography—and 160-61), on the bullae we have **dwb'wndy** (Gyselen 2007: 192-93 and 282-83). On the geographical name itself see Eilers 1988.

²⁵ Cfr. **PWN pndy W p'd[ys]y ZY LNE YKOYMWNd** (B12-13,05).

Parthian blocks

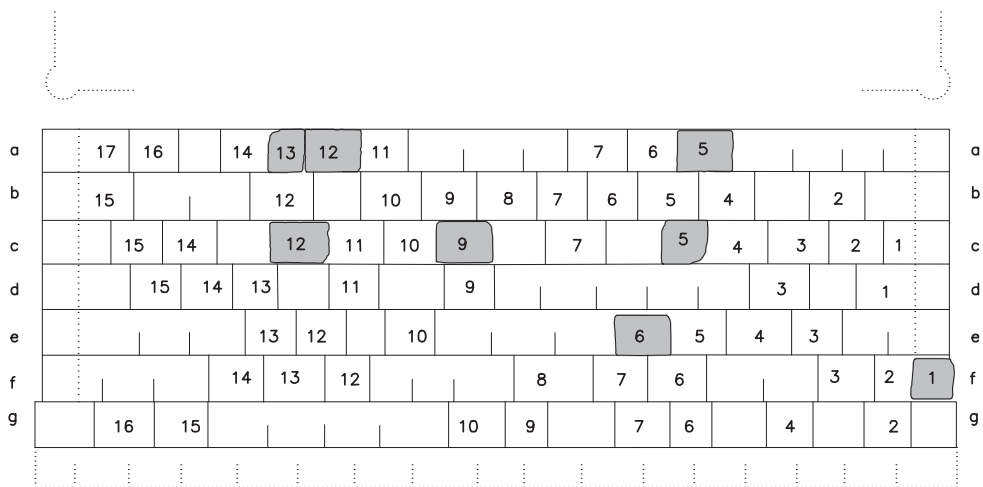


Fig. 2. Graphic reconstruction of Parthian version, based on the philological study of Humbach and Skjærvø (1978-1983, 2, p. 15), the eight new blocks are marked in grey.

PK62	a5
1	[y](^ˆ)z(t)n BR[Y] mz(dyz)n ²⁶
2	-(z)stn HBDYWd ²⁷ W
3	hwtwypy (O)L NPŠE
4	W prtw W AH(R)N MNW
5	(G)BRA ^ˈ rmn(y)n MLK(A)
6	[^ˈ]rth(št)r (swry)n (W)

²⁶ Perfectly corresponding to Skjærvø’s reconstruction, based on the official titles of the sovereign, see Humbach-Skjærvø 1978-1983, 3.1: 27.

²⁷ Probably a verbal heterogram, corresponding to MP **OBLWN**. Prof. Giovanni Garbini made us aware of the old causative form **h^ˈbd** belonging to the root **ˈbd** “to die, to be lost”, here we may have an hap’el form of this root akin to **HWDOYW** “to tell”, from Aramaic **hwd^ˈ** and possibly borrowed in a 1st sg. form, for which compare **AŠMOYW** “to hear” (Ar. **šm^ˈ**). See further Skjærvø 1986: 432-33.

PK65 PK66	a12	a13
1	prgw(z ²⁸ 'n)[h]tyE ²⁹ nryshw	(W) [L]N ZNE [...]
2	LA LN 'pr's OBDWd	(W) LA (h)štrdr(n)
3	twhm W grmykšn ³⁰ RBA	W 'z('t H(D)T ³¹
4	prml-y(tn) W dwšmnyn ptysh(w) ³²	YN(T)Ntn W LA
5	AYK AM(T) OBDk OL	(h)wtwypy HQA-lyMWt
6	k(t)k OBDk msyšt	[W] prtr W twh[m]-lykstr

PK77	c5
1	[M](L)KA H[O]D(Y)B[...]
2	'hwrnzd wr'z
3	'swrl-(s)tn W ntšrwkn ³³ W
4	[Š]ΘRA whyšt
5	[šw]gwn (Z)NE RBA ³⁴
6	[.....] [my](š)n dgl(t)

²⁸ The name *Pērōz* appears also in c14-15,01.

²⁹ In the only other Parthian occurrence the name of the goddess Anāhīd is written 'nh[t]yE, corresponding to MP 'nhyt, attested also in Kerdīr's inscriptions (KKZ 8). In Paikuli b6-7,02, the grapheme **t** is found at the very beginning of block b7, in an area where the stone is damaged. In block b6,02 the first half of the name is clearly readable and the grapheme **h**, smaller than usual, is found above the letter **n**. A comparison between the two *loci* seems to support the proposed reconstruction. (Humbach-Skjærvø 1978-1983, 3.1: 35 and 79, see also Henning 1958: 65)

³⁰ A number of Parthian ethnical names end in -šn; cf. **kwšn**, **lhmyšn**.

³¹ This heterogram is only found in the Nisa documents (Gignoux 1972: 52, Diakonoff-Livshits 1977-2001: 191). The reading of the second letter is not assured, its lower part being damaged. In the Nisa documents this heterogram, meaning "new", is systematically used to define "new" wine. The alternative reading **hrt[w]**, makes very little sense in the context and is otherwise only found in Rawlinson's drawing of block e4,05 and is not elsewhere attested in inscriptional Parthian, though **xrd** /*xrad*/ is well known in Manichean Parthian and Middle Persian. Moreover, Skjærvø doubts Rawlinson's reading; Humbach-Skjærvø 1978-1983, 3.2, §65 p. 103.

³² The expression **dwšmnyn ptyshw** is found also in f12-13,03 and g15-16,02.

³³ This reading corrects Humbach-Skjærvø 1978-83, 3.1: 42-3, where the author read *Xūzestān. Nōdšīragān* is a toponym attested as MP **nwthštrkn** and Pth. **ntwštrkn** in ŠKZ (§2 and §44) in both occurrences rendered by Gr. Ἀδιαβηνή, a province between the Upper Zab and the Lower Zab in today's Kurdish region of Iraq, whose capital city was Arbela, modern Arbil/Howler (see further Huyse 1999, I: 115, II: 20). The form attested here presents another variant of the Parthian spelling, suggesting the presence of an [o] vowel in the third syllable. For a possible etymology of this geographical name see Henning 1954: 49.

³⁴ Cfr. MP **LBA dydymy**; E 9, 02.

PK78	c9
1	[... ..]
2	[p]rg[wz]š(h)y[pwr] ³⁵
3	p(tyrk) A(TYt) HWYN (W?) ³⁶
4	[wh]y'n[m] pty [N](P)[ŠE]
5	'p(r) (h)rk(p)[ty] [W] [B]R[BYTAn W]
6	ML(K)[A] (W) [...](h) [.....]

PK81	c12
1	[...] [O](BDt) [.....]
2	thmšhl-[ypw]hr W (')trwp(rn)bg
3	HQA(Y)[M](W)t W (wr ?)[... ..]
4	[...](n)[...](M)[...] 'r(m)n[y](n) [M]L(K)[A]
5	HWY(N)[... ..] (k)[...](hm)n
6	[... ..] ['](p'ryk)

PK90	e6
1	[...](')[...](n's/py) [...]d
2	AHDt W ASRt Wš spsy ⁻³⁷
3	Wš wtr(y) ³⁸ OBDWm W BAT(R)
4	W 'k HD-y'wr LHwyn (A)LH(Y)[N]
5	(š)hypwhr MLKYN MLK(A)
6	hw-krtnystr ³⁹ ' -

PK94 ⁴⁰	f1
1	[h](w)tw(h)[y]
2	(g)t(w)
3	[...](p's)[...]
4	[... ..]g[...]
5	H(QA)YMW[...]
6	

³⁵ The reading is uncertain, possibly the personal name *Pērōz-Šābuhr* is here attested.
³⁶ Reading uncertain, the corresponding MP version (C7,06) is also damaged.
³⁷ Probably **spsydr**; see E16,05.
³⁸ Doubtful, corresponding to MP **wtly**.
³⁹ The word **krtnystr** (MP **krtk'ntly**) is attested also in NPi G12,02, f7,03.
⁴⁰ This semi-column was found in a sheep pen in the village of Barkal, not far from the archaeological site.

Synoptic reading

In the present discussion we shall follow the order of tiers of the Middle Persian version, independently whether presenting Middle Persian or Parthian materials. New evidence is marked in bold.

For tier A, we have no new Middle Persian block but we do have three new Parthian blocks, two of them being adjacent:

|^{A4,01}nyr[ʾn] M[NW] ctry M[N] |^{A5,01}-----
 |_{a4,01}-----|_{a5,01}[y](ʾ)z(t)n BR[Y] mz(dy)z)n
 |^{A6,01}-----
 |_{a6,01} [A]LHA šhypwhr-----

§ 1 “(I am the Mazdean Majesty Narseh, King of Kings of Ērān and Anērān whose seed is from **the Gods, son of His Mazdean Majesty Šābuhr...**”

In paragraph 1 the information contained on block 5 of the Parthian version confirms part of Skjærvø’s reconstruction of the text, which he proposed on the parallel of other genealogies of Sasanian monarchs as found in their inscriptions (Humbach-Skjærvø 1978-1983, 3.2, pp. 19-20).

Quite differently the information provided by the new blocks for §§ 2-4 is very important:

plky |^{A12,01}-----[nr]|^{A13,01}shy W LNE LZNE plky
 p[lk] |_{a12,01}prgw(z ʾn)[h]tyE nrsyhw |_{a13,01}(W) [L]N ZNE [...]
 M[N H]NA krty
 |_{a14,01}--- [Z]K OBDt

§ 2 “(This is) the monument **of Pērōz-Anāhīd-Narseh**⁴¹ and we made this monument because”

⁴¹ Probably an artificial compound *Pērōz-Anāhīd-Narseh*, to be compared with Kerdīr’s well known epithet (*Kerdīr ī Bōxt-ruwān-Wahrām*, for which we still agree with MacKenzie 1989: 63, rather than Grenet 1990: 90-91, followed by Gignoux, 1991: 69, n. 134, or Huyse 1998: 116-118 (with earlier bibliography), though the attestation of *Bōxt-ruwān-Wahrām* on a seal, where it is apparently used as a proper name, represents an open problem. In our opinion *Pērōz-Anāhīd-Narseh* is probably a possessive compound with the approximate meaning “Narseh with a victorious Anāhīd”, i.e. “Narseh victorious by the grace of Anāhīd”, and was the name of the monument itself, a name which would underline the importance of this deity in securing victory to the legitimate heir of the dynasty. The dynastic fire in Istaxr was called Fire of *Anāhīd-Ardaxšīr* and *Anāhīd* the Lady (KKZ 8 = KNRm 25 = KSM 12, for which see MacKenzie 1989: 54 and 58 and

-----|^{A7,02}n OBLWN W whwn'm |^{A8,02}ZY ttlws[
 -----[hw]|_{a5,02}(z)stn HBDYWd W |_{a6,02}whyn'm ME ttrwsn

§ 3 “.. in Khuzistan passed away and Wahnām son of Tatus...”

First of all, it is important to underline that the new materials reveal that the monument is called *Pērōz-Anāhīd-Narseh*, a name which confirms the important role played by the goddess in royal ideology of Sasanian times. The formula employed can be compared to the dedication in the so-called Nokonzog Bactrian inscription.⁴² The unfortunately rather lacunose

Gignoux 1991: 59 and 69, who however considers *Anāhīd-Ardaxšīr* to be the name of a daughter of Šābuhr or possibly of Ardaxšīr). Strabo (XII,2,7) reports that in Cilicia at Hierapolis-Castabala the sanctuary was named after Artemis (i.e. Anāhīd) *πέρασις* (ὅν ἐν τοῖς Κασταβάλοις ἐστὶ τὸ τῆς Περασίας Ἀρτέμιδος ἱερόν) an appellative that was not understood by Strabo, who relied on Volksetymologie (cf. Dupont-Sommer - Robert 1964, pp. 13-14). The same epithet, *Περασία*, is attested by some epigraphic evidences coming from the site of that city (Dupont-Sommer - Robert 1964: 33; 35; 48). On the mysterious identity of the Cilician goddess see Dupont-Sommer - Robert 1964: 47-53. Whereas the matter is still unsolved, it is interesting to note, following the French scholars, that the eagle represented on some coins minted in Hierapolis-Castabala and linked with the goddess sitting on the throne, is strongly related with the symbol of Zeus Nicephorus, cf. Dupont-Sommer - Robert 1964: 96-99. Classical sources attest the cult of Artemis Persike or Artemis Anaitis in Asia Minor as well (Boyce - Grenet 1991: 219-220; 252; 308), while on the other side of the Taurus range, in a Greek epigraph, the warrior goddess of Hierapolis-Cumana in Cataonia, who is the tutelary deity of Capadocia and of its ruling dynasty, is identified by the appellative *Νιχηφόρος Θεά* (Dupont-Sommer - Robert 1964: 95). On Anāhīd\Artemis and the diffusion of her cult see further Trever 1967, particularly p. 123, and Chaumont 1985. The Greek form of the name *Pērōz* is found in ŠKZ, where it is written *Πηρωζ* / *Πηρώζης* to indicate precisely the quantity of the vowels. However this was an “official” transcription of the name of a member of the Iranian nobility, while Greek sources may well be based on oral or local tradition; the form *Περόζης* is attested in the works by Prokop (15; 159), Agathias (4, 27) and Malala (441), see Justi 1895: 247-251. For the other hypotheses concerning the epithet *Περασία* cf. Casabone 2004: 141, n. 59. *Anāhīd*, is the protective deity of regality and therefore protects and favors the legitimate heir. This functions is recalled in an episode narrated by Plutarch in which Artaxerses II after the death of Darius II went to the temple of a warrior goddess in Pasargade, compared by the author to Athena, clearly to be identified with Anāhīd (cf. also Plutarch, *Artaxerses* 27, 3, where probably the same goddess is meant). The royal initiation rite foresaw that the future king would take off his dress, don the one worn by Cyrus the Elder before becoming king, eat a cake of figs, swallow terebinth and drink a bowl of sour milk (Plutarch, *Artaxerses* 3, 1-2, cf. Kuhrt 2007: 568-569).

⁴² Compare the beginning of Nokonzok's Bactrian inscription: *εἶδο μα λίζο μο κανηΡκο οανινδο βαγολαγγο σῖδο ι βαγο Ραο κανηΡκι ναμοβαργο κῖρδο* “This Citadel is the sanctuary of Victorious Kaniška to which the lord king Kaniška gave its

passage in § 3 may provide evidence for the death of King Wahrām II in Khuzistan.

In § 5 the new Parthian block only adds the word **hštrdr'n** “Landholders”, providing for a fuller understanding of the text, whereas more radical is the change in the interpretation of § 6:

W PWN |^{A14,02}ZK CBW LA LNE |^{A15,02}[p]l'sy [O]BYDWN W
W pt[y] LHw (C)[BW]|_{a12,02} **LA LN 'pr's OBDWd**

L[A]|^{A16,02}-----[BLBY]|^{A17,02}TAn 'pl's[y] ---
|_{a13,02} (**W**) **LA (h)štrdr(n)** |_{a14,02}BRBYTAn 'prs ---

§§ 4-5 “And he did not inform Us about this matter nor did he inform **the Landholders** and the Princes.”

|^{A7,03}[Z]Y sk'n MLKA dydy|^{A8,03}my LOYŠE O|^{A9,03}[SLWN]
|_{a2-4,03} -----

-----|^{A10,03}-----
[hštr] |^{a5,03}**hwtwypy (O)L NPŠE** |_{a6,03}QWMTE YCEBt

-----|^{A11,03}WNtn
|_{a7,03} [...] HQAYMtn

§ 6 “...tied the diadem to the head (of Warahrān) King of the Sakas and strongly (?) wished **rule for himself** ...stand...”

The meaning “wished rule for himself”, the subject being Wahnām, Wahrām III main ally, seems assured. What is left to explain is the sense of the heterogram **QWMTE**, here seemingly in a preverbal/adverbial function, which led us to tentatively translate it “strongly”, accepting to a certain degree the interpretation given by Skjærvø, who links this heterogram with Aramaic **qwmh**.⁴³ The small gap found in the inscription between **QWMTE** and **YCEBt** needs not to have ever contained any letter, cf. e6,05 **msyšt W prtr**.

name”, for the text see Lazard\Grenet\de Lamberterie 1984: 226, for the translation see Huyse 2009: 108, with earlier literature.

⁴³ See further Humbach-Skjærvø 1978-83, 3.2: 29. We have kept to Herzfeld's (1924: 95), which was later followed by Humbach and Skjærvø. The letter **W** is ruined in its upper part, so it cannot be identified with absolute certainty, leaving open the possibility of a reading **QDMTE** as done by Gignoux (1972: 62). However the downward stroke is slightly rounded, nearer to that of a **w** than to that of a **r**d.

In § 8 Wahnām seems to claim the allegiance of his own family and of the Garameans, possibly granting them feudal rights in change of commitment to the cause of Wahrām:

-----t^[A17,03]]wmy W glmyk'n^[A1,04]-----|^{A2,04}-----
W MN NPŠE_{a12,03} twhm W grmykšn RBA_{a13,03} W 'z(')t H(D)T
-----|^{A3,04}[O]BYDWNn
_{a14,03} dstkrty OBDWn

§ 8 “and I shall make new property of (both) my own family and the grandees and freemen of the Garameans.”⁴⁴

The new materials belonging to §§ 10, 11 and 13 bring little new, confirming Skjærvø's reconstruction, the only exception being the words **W dwšmyn ptyshw YNTNTn W LA...** “and to give an answer to the enemies and not...” found in § 11.

--W p'lsy W pl[s^[A12,04]wby W AHRN MNW...]
---|_{a5,04}-----W prt看 W AH(R)N MNW

§ 10 “And the Persian and the Parthians and the others who....”

p'l[s']n^[A4,05] [k']ly [pt]m'tny W š--|^{A5,05}-----|^{A6,05}-----
p'rsn k'ry prml_{a12,04}y(tn) W dwšmyn ptysh(w)_{a13,04}YN(T)NTn W LA

§ 11 “...is able to govern the affairs of the Persians **and to give an answer to the enemies and not...**”

|^{A14,05} W hmky štry GBR|^{A15,05}[An 'l](m)[n']n MLK[A]
-----|_{a5,05}(G)BRA 'rmn(y)n MLK(A)

§ 13 “...and the men of the whole realm the King of Armenia ...”

⁴⁴ See note 31. On the importance of Garamea for the Wahramids see the passage found in the Chronicle of Seert where it is said that Wahrām II spent his youth in Karkā d-Ġuddān, in Garamea, learning some Syriac (*Chronicle of Seert*: 237-239), see further Weber 2009: 570-571. On Karkā d-Ġuddān see also Chaumont 1982: 161. On **dstkrty** see Humbach-Skjærvø 1978-83, 3.2: 31-32. In the Paikuli inscription **RBALBA** and **'z'c't** appear both with or without plural marker in the lists of notables, see Humbach-Skjærvø 1978-83, 3.1: 77 and 106-107; see also the conspectus in 3.2: 46.

Since the two versions do not overlap precisely from the point of view of tier distribution, the last line of block a5 as well as the last two lines of blocks a12 and a13 fall within tier B. No new block belonging to Middle Persian tier B has been discovered.

According to the new evidence the wording of § 15 is slightly different from what proposed by Skjærvø (Humbach-Skjærvø 1978-83, 3.2, p. 32):

....AYK AMT |^{B7,01}-----[hwt'dy]|^{B8,01}hy -----
 |_{a12,05}AYK AM(T) OBDk OL |_{a13,05}(h)wtwypy HQA|_{a14,05}YMWt

§ 15 "...so that when (**this**) servant rises to power ..."

The new evidence shows that an inversion has occurred in the order in which the nobles are presented in the two versions of our text:

|^{B15,01} W 'rthštr ZY h|^{B16,01}[z'lw]pt W lhšy|^{B1,02} [sp'hp]|^{B2,02}t W ['r]thštr
 -----|_{a4,06}-----|_{a5,06}['rth(št)r (swry)n (W)

|^{B3,02}[ZY swlyn]

|_{a6,06} rhš spdpty W|_{a7,06}

§ 16 MP "...and Ardaxšīr the Hazārbed, and Raxš the Spāhbed and Ardaxšīr [Sūrēn]..."

§ 16 Pth. "....., and Ardaxšīr Sūrēn⁴⁵ and Raxš the Spāhbed and...."

Finally, the last passage found in Parthian blocks a12 and a13 does not carry any new information, confirming the reading of the existing Middle Persian version. Significantly the Pth. spelling **twmykstr** confirms Skjærvø's interpretation of MP **twmyktwmy** as being derived from MP *tōhm* "seed, lineage, family" rather than connected to OP *tauman-* as thought by Herzfeld followed by Gignoux.⁴⁶

⁴⁵ *Ardaxšīr Sūrēn* is found also in another passage of Narseh's inscription, C14,04/c4,02.

⁴⁶ See Humbach-Skjærvø 1978-83, 3.2: 48; Herzfeld 1924, p. 245, Gignoux 1972: 65.

MNWn BYT(A)^{|B10,02} OBDK(y) mhst(y W p)[^{|B11,02}]swmy
 MNWn_{a12,06} **k(t)k OBDk msyšt**_{a13,06} [**W**] **prtr**

W twmyk^{|B12,02}twmy HWYTNt
W twh[m]_{a14,06}ykstr HWEnt

§ 16 “who were the greatest, the foremost and the noblest among the Servants of the House”

One Middle Persian block and three Parthian ones belonging to tier C have been discovered. Though not much new information can be acquired from the new findings, the wording found on the new blocks slightly differs from what proposed by Skjærvø.⁴⁷

W MN ZK k^{|C13,03}[I](w^ˈn) [ZY] s[k]^ˈn M[LKA] LA ^{|C14,03}LA ODYTNt⁴⁸
 W [...]_{c4,01}...w k^ˈrw^ˈn M[E... ...]_{c5,01}[**M**](**L**)**KA H**[**O**]**D**(**Y**)**B**[..]⁴⁹

§ 31 “... and departs from the army of the King of the Sakas ...”

^{|C2,04} **AMT LNE nzdy**[-----]^{|C3,04}swrstn OL ZNE
 -----_{c9,01}-----_{c10,01} OL ZNE
 gy^{|C4,04}[w^ˈk]-----^{|C5,04}ZNE plky krtY YKO[Y]^{|C6,04}MWNt
 [A]TRE _{c11,01} YMΘAEm AYK ZNE_{c12,01}----[**O**](**BDt**)-----

§ 32 “**When We near** (...) We arrived in Asōrestān, to this place... (where)...this monument has been made...”

⁴⁷ The few barely readable letters found in line 3 of C2 bring nothing new.

⁴⁸ For the heterogram **ODYTN** see Humbach-Skjærvø 1978-83, 3.2: 67, MacKenzie (1989: 64) tentatively proposed that the Middle Persian verb hidden behind this heterogram may be *franaftan*.

⁴⁹ Possibly the Parthian counterpart of Middle Persian **ODYTN**, see Humbach-Skjærvø 1978-83, 3.2: 67, where the Imperial Aramaic *ˈdy*, and the perfect causative *hafʿel* form *hʿdy* (Jean-Hoftijzer 1965: 204) is indicated as the possible origin of **ODYTN**, a root that may also explain the Parthian form ***HODYBW-**. The *hafʿel* form is also attested in Biblical Aramaic by *hʿdyw* “they took away, they removed” (Daniel 7: 12; 5: 20), see Rosenthal 1983: 46 § 116 and 56-57 § 184.

W ʾwhrmzdy |^{C15,04} ZY wrʿc

W|_{c5,02} ʾhwrmd wrʿz

§ 32 “...and Ohrmazd Warāz...”

The following passage combines the evidence found in C2,05 and c9,02. The Middle Persian block confirms the reading of Parthian c7,02, while the new Parthian evidence informs us about the name of another of Narseh’s supporters, *Pērōz-Šābuhr*.

|^{C2,05}----[ʾwh](l)[mz](dy) mgw(pt)[y]--- |^{C3,05}c nrsy ZY kʾlny W

|_{c7,02} W krtyr ʾwhrmzd mgw|_{c8,02}[pty W]-----

|^{C4,05}-----

|_{c9,02}[p]rg[wz] š(h)y[pwr]

§ 32 “... and Kardīr the Mowbed of Ohrmazd, [...]z-Narseh the Kārin⁵⁰ and *Pērōz-Šābuhr⁵¹”

The portion of text recovered from Pth. c12,02 discloses the name of yet another of Narseh’s allies, an *Ādūrfarrbay*, certainly not to be identified with the King of Mēšān, one of Wahrām’s main supporters.

W ʾrth|^{C7,05}štr ZY t[h]mš[h|^{C8,05}pwhry]-----

|_{c11,02}W ʾrthštr thmšh|_{c12,02}[ypw]hr W (ʾ)trwp(rn)bg

§ 32 “...and Ardaxšīr Tahmšābuhr and Ādurfarrbay...”

The next passages allows for a correction of Skjærvø’s reading. Where he proposes *Xūzestān* one should instead read *Nōdšīrogān*.

⁵⁰ On this name see Schmitt 1983.

⁵¹ This anthroponym is otherwise found in ŠKZ 4, 27 as a byname of *Pābīg* son of *Šanbid*, according to the Middle Persian version, while according to the Parthian and Greek versions it may be the byname of two brothers, *Razmayōd* and *Pābič* (Pth. *Razmayōd ud *Pābič Pērōz-Šābuhr Šanbidgān*), cf. Huyse 1999, I: 157, II: 162-163. *Pērōz-Šābuhr* is also attested as the name of the fortified city found on the left bank of the Euphrates and also known as *Anbār*, cf. Morony 1985: 5. Though less probably, the second word could also be read š(p)y[stn], giving: “Pērōz the Eunuch” (on this word see Skjærvø 2006b).

[C2,06-----[C3,06]n W glmykn W syd'l[C4,06wly]
 MNW 'swr|_{c5,03}(s)tn W ntšrwkn W|_{c6,03}-----|_{c7,03}r HWEnt
 §§ 32 "... who were in Asōrestān, Nōdšīrogān,⁵² Garmīgān and
 Syārazūr..."

The Parthian passage in c12,03 does not shed any new light on the contents of the inscription, simply confirming what is written in the Middle Persian version.

L[NE] ptl^{C7,06}[y]lky YATWNd|^{C8-9,06}-----
 |_{c9,03} [.....] p(tyrk) A(TYt) HWYN (W ?)|_{c10,03} TNE hndymn
 -----[YKO|^{C10,06}Y]MWNt W
 YHWE[n]|_{c11,03}t AYK ZNE plk OBDt|_{c12,03} HQA(Y)[M](W)t W
 wlhl'n ZY s[k^{C11,06}n]
 (wr)[.....]

§ 32 "they came to meet Us, here in Our presence, where this monument has been built. § 33 And Wahrām king of the Sakas...."

The only complete new Middle Persian block belonging to tier D is D2. Unfortunately this block is quite damaged, though its identification is strongly suggested by its coherence with the newly found fragment D1bis. Parthian blocks c5, c9 and c12 also cover the first three lines of MP tier D.

No new information is found in D2,01, c5,04 and c9,04, all running parallel to their corresponding versions.

|^{D1,01}[OŠMEN]d A(YK)|^{D2,01} [LN](E) M(N) 'l|^{D3,01}mn[y 'r'n štry
 |_{c3,04} AŠMOYWnt AYK LN MN|_{c4,04} 'rmny OL 'ry'n hštr
 lwny wh[s]|^{D4,01}ty HWEm
 |_{c5,04} [Š]ΘRA whyšt|_{c6,04}-----

§ 33 "...they heard that We had set out from Armenia towards
 Ērānšahr..."

⁵² Adiabene, for glyptic evidence see Gyselen 1989: 56, 78-89; ead. 2002: 145, 162; ead. 2007: 142-143, where the toponym is attested as **nwt'ltš'ltk'n** (*Nōd-Ardaxšīragān*). The Middle Persian form **nwthštrkn** is attested in ŠKZ 30, KSM 16 and KNRm 35, while a Parthian **ntwšrkn** is found in ŠKZ 24.

whwn'm P[WN]^{D8,01} NP]ŠE y[ʔt]wkhy
 |_{c9,04}--[wh]y'n[m] pty [N]P[ŠE]|_{c10,04} y'ʔs'ʔpy

§ 34 “Wahnām by his own sorcery...”

Rather more interesting is the evidence that the new blocks provide for the second part of § 34, where the king of the Armenians is mentioned:

whwn'm P[WN]^{D8,01} NP]ŠE y[ʔt]wkyhy|^{D9,01}-----
 --[wh]y'n[m] pty [N]P[ŠE]|_{c10,04} y'ʔs'ʔpy ʔtrw[pr]|_{c11,04}nbg ME myš'n
 |^{D10,01}[...](LNE)[...](s's)[...]|^{D11,01}[.....]z|^{D12-13,01}-----
 [M]LKA|_{c12,04}[...](ʔn)[...](M)[...]'r(m)n[y](n) [M]L(K)[A]⁵³|_{c13,04}-----
 -----|^{D14,01}(M)LK(A)|^{D15,01}-----
 |_{c14,04} OL] pry't YBOEd W |_{c15,04}myšn MLKA ptgml|_{c16,04} [ŠLHWd AYK ?]

§ 34 “Wahnām by his own sorcery sought help from Ādūrfarrbay King of Mēšān (against) Us...Sāsān (?) ... **the King of Armenians**, ...and he sent a message to the King of Mēšān, that: ...”

Taken together with the following paragraph, this passage may suggest that Ādurfarrbay, King of Mēšān was sent against the King of Armenia with a message.

|^{D1,02}[ML]KA pr[ʔc] (ʔy)w YA(T)[WN]^{D2,02}]t A[H]R[N] HT
 |_{c1,05} MLKA prhš |_{c2,05} hyp ATYE t AHRN
 s[kʔ]|^{D3,02}n MRKA lsyk ADYNc|^{D4,02} myš'n MLKA HNA[...]|
 |_{c3,05} ʔk skn MLKA ʔšnht |_{c4,05} ʔdynš myšn MLKA ZK|
^{D5,02}-----dy]|^{D6,02}y my myš'n MLKA |^{D7,02} YHBWNn
{c5,05}[...šw]gwn (Z)NE RBA|{c6,05}-----|_{c7,05} MLKA YNTNWN
 OD ʔlmn'n MLKA|^{D8,02} LHYK ʔnd[..]n
 HN ʔrmnyn |_{c8,05}-----

⁵³ We have chosen this reading, though uncertain, since in Narseh's inscription each time that the King of Armenia is mentioned we have the sequence ʔrmnyn MLKA. The word found in ŠKZ § 37 (Pth. 20): ʔwhrmzdʔrthštr RBA MLKA ʔrmyn refers to a very different political situation, see further Weber 2012: 171-172.

§ 35 “May the King (of Mēšān) come forth. If another is the page⁵⁴ of the King of the Sakas, then the King of Mēšān that ...**just as** I shall give **this great** diadem to the King of Mēšān until the king of Armenia ... is far”

For the following passages, all part of § 36 and § 37, the new evidence does not add anything, fitting in well with Skjærvø’s conjectural readings.

QDM hrgwp^{|D9,02[t]}-----
{|c9,05}’p(r h)rk(p)[ty] [W B]R[BYTAn W]{|c10,05} RBAn W ’z’t[n W]
^{|D10,02}W A[H]RN MNW ’swr[stn] [...] ^{|D11,02}[.....
_{|c11,05} AHRN MNW ’swrstn _{|c12,05}**HWY(N)[...](k)[...](hm)n**

§ 36 “Concerning the Hargbed **and the Princes** and the Grandees and the Nobles and the others who **are** in Asōrestān....”

-----^{|D1,03}YH]B[W]N HWYTN Z[K ’pl YM](LL)[WN]
{|c2,06} [dr]wzn wty YNTNt{|c3,06} HWE LHw ’pr YMLLt
^{|D2,03}[M](E w)hwn’m ’[pl^{|D3,03}stpty YHWWN W myš’^{|D4,03}n dglty
_{|c4,06} ME whwn’m ’pystpy _{|c5,06}-----[my](š)n dgl(t)
 OL ZNE ŠT^{|D5,03}[RA]
_{|c6,06}-----

§ 37 “the bad lie had been given, that he said: since Wahnām was rebellious (?) § 38 and (he crossed ?) the Mēšānian Tigris to this side...”

O[L]^{|D7,03} wlhl’n ZY sk’n MLKA^{|D8,03} W whwn’m pwšty OZLW[N]
 -----_{|c9,06}---[ML(K)[A] (W) [...](h)[.....]_{|c10,06}pwšt AZLt
 W m^{|D9,03}-----^{|D10,03} [...]t W LWTE sk’n M^{|D11,03}LKA
 W [...]_{|c11,06} hštrhwtwypy _{|c12,06}[... ’](p’ryk)_{|c13,06}-----

⁵⁴ “Page” translates MP **lsyk** (*rahīg*) corresponding here to Pth. **šnht**, cf. MMP **šnxt**, BMP *āšnag* “known”. On both terms see Skjærvø in Humbach-Skjærvø 1978-1983, pt. 3.2: 71. On the term **lsyk** that some consider to be a variant of **lsyk** see Skjærvø 1983: 294, MacKenzie 1989: 68, and most recently Grenet 2011: 128.

§ 38 “He went to the support of Wahrām King of the Sakas and Wahnām and rulership ... **other** ... and with the King of the Sakas...”

Quite different is the case for § 41 and § 44. Here, in lines four and five, block D2 allows the reader to fill important lacunae. On the contrary, line six of the same block does not shed any new light on the contents of § 46.

|^{D2,04}.... |(M)L(K)A W my(š')|^{D3,04}n MLKA W whwn'm
|_{d4,01}-----|_{d5,01}-----

§ 41 “...**the King** (of the Sakas ?), the King of **Mēšān**, Wahnām ...”

|^{D2,05}APšn '|(wnd)ykn MROHY (P)[W]|^{D3,05}N SWSYA W
HWYm Wšn '[...]|_{d4,02}-----|_{d5,02}-----

GBRA OL|^{D4,05} LOYŠE SGYTN
-----|_{d6,02}-----

§ 44 “...and **the Lord of Undīgān** took their lead with horses and men...”

|^{D1,06}W myš['n]|^{D2,06}[.....](w)[....] [K]ON (p)[r]|^{D3,06}c [O]L 'swrst[n]
-----|_{d3,03} MLKA W whwn'm HN 'w[s]|_{d4,03}-----
w[y]|^{D4,06}mndy LA YHMTWN|^{D5,06} [HWEnd]
-----|_{d5,03}-----|_{d6,03}-----

§ 46 “...King of Mēšān and Wahnām (had) not yet arrived at the border of Asōrestān...”

The information provided in lines 4 and 5 proves important for a better understanding of our text. In particular, line 4—if correctly understood—suggests to interpret § 41 as follows: “(Wahrām), King (of the Sakas), the King of Mēšān, Wahnām and those who were with them paid homage (to the Gods ?) and swore pacts and oaths several times”, thus proving Skjærvø’s alternative hypothesis as put forth in his Commentary to the inscription.⁵⁵

⁵⁵ See Humbach-Skjærvø 1978-1983, pt. 3.1: 47 and pt. 3.2: 75-76.

Even more important is the new information provided in l. 5, since it changes the subject of the sentence from Ādurfarrbay, King of Mēšān, a supporter of Wahrām, to the Lord of Undīgān, a great ally of Narseh. Though §§ 44 and 45 are quite obscure and allow no straightforward interpretation, it seems certain that the protagonist of the military campaign was Narseh's army—or a part of it—led by the Lord of Undīgān that set out against a person who had set his cavalry in front of **Ngwdy**, probably a toponym for which no identification is yet at hand.⁵⁶

Four new Middle Persian blocks belonging to line E have been identified among the materials now kept in the Sulaimaniya Museum. Taking into account also the recent publication of block E1,⁵⁷ since Humbach and Skjærvø's standard edition of our inscription a total of five new Middle Persian blocks belonging to this tier have been rediscovered. Moreover, the Parthian Block e6 has also been recently recovered. Blocks E6 and E8, separated only by block E7, which must have been a very small block, will be discussed first.

The third new block in tier E has been provisionally classed as E16\17. Both this and the following block, E17\18, have been heavily damaged by the wear and tear of time and since they both are very abraded and fall in an area of the inscription which is full of lacunae, their identification cannot be certain, being based on the overlapping between the Middle Persian and the Parthian texts occurring in line one, on the possible coincidence of **nwky (klp)[kyhy?]** (E17\18,03) with d9,06 [**nwk k]rpkpy** and on the fact that E16\17,05 agrees with e6,02. However, should the identification be correct, it would show that there probably never was a block E18, since though taking into account the paucity of evidence, which makes any conclusion only hypothetical, it would seem that the content of E17\18 fits in well with that of E1.⁵⁸ However, neither of the

⁵⁶ Thus § 44 can now be translated: "And the Lord of Undīgān took their lead with horses and men. From Our (court) they went (at) an evil time. (But) it was a worse (?) (time? for him ?) who had placed (his) horsemen in front of **Ngwdy**".

⁵⁷ Skjærvø 2006a.

⁵⁸ One should also take into account that in his description of block E1 Skjærvø (2006a: 120) says "The new block turns out to be a wide block, as reconstructed by Herzfeld, rather than a narrow block as reconstructed by Humbach and Skjærvø".

passages found in these blocks and belonging to line one of this tier, respectively found in § 48 and §§ 49-50, add anything significant to our understanding of the text.

|^{E5,01}-----|^{E6,01}[...]([?])[... ...] |^{E7,01}-----
 ŠLHWm |_{d2,04}-----|_{d3,04}ny'kn MNW
 |^{E8,01}LK ([?])p[y]n(y)[d'pk]... ... YTY|^{E9,01}BWNst HWE
 ANT 'pyny'pk|_{d4,04}-----|_{d5,04}-----

§ 48 "...saying: [that throne of your father and] ancestors which you have in an unfitting way sat upon..."⁵⁹

-----|^{E16,01}-----(**BBA**) -----|^{E17,01}-----]š(p)[...]HWE
 |_{d9,04}LHw by'spn OL skn|_{d10,04}-----|_{d11,04}HWEd
 |^{E1,02}[W] LNE PWN LBA
 W LN pty RB[Al|_{d12,04}

§§ 49-50 "And that ambassador to the **Court** [of the King] of Sakas [that: ?] ...šp... are. And We in great..."

In § 50-51 block E6 confirms the hypothetical reading **hštrstn** put forth by Skjærvø for the Parthian version, followed, however, by what seems to be a verbal heterogram that we have tentatively identified as **YTYBWN-**:

|^{E5,02}-----|^{E6,02}-**ry štrdstn (YT)**|^{E7,02}[YBWN]-----
 OL |_{d15,04}wryhrmšhypwhrl|_{d16,04}-----|_{d17,04}
 [M]|^{E8,02}LKA (**AYK**)-----[HZYTN]|^{E9,02}t
 -----|_{d1,05}[p]rwrk ME LN HZY|_{d2,05}t

§ 50-51 "...settled in the city of Wahrām-Šābuhr, ...[and] the **King** [of the Sakas] **when** he saw Our letter"

Though not perfectly readable, the passage at the end of line two (E16-17,02) corresponding to § 52 of the inscription informs us of the presence

⁵⁹ See Shayegan (2004): 116.

of Ohrmazd ī Warāz at the Court of the Sakas, should this be the correct interpretation of the lacunary passage.

|^{E16,02}--[s](k)'n BBA (MN)⁶⁰---|^{E17,02}['whrm](z)d(y) ZY wr(')[c]
 |_{d7,05}-----|_{d8,05}-----
 |^{E1,03} YNPKWN W wydm'n
 |_{d9,05}b[.](t)

§ 52 “(...) **the Court of the Sakas from ... Ohrmazd ī Warāz** went (?) and in a better spirit”.⁶¹

No significant new information is provided by E6 and E8 in line three (§§ 53-54), where, however, we have preferred a translation different from the one proposed by Humbach- Skjærvø:⁶²

W whwn'm AYK HZYT|^{E5,03}[N] -----
 whwn'm AYK HZYW|_{d12,05}-----|_{d13,05}[y]'ztn GDE W
 |^{E6,03}štry hwt'dyhy|^{E7,03}-----[YH] |^{E8,03}(B)WN W
 h[štr]|_{d14,05}hwtwypy OL LN |_{d15,05}YNTNt W
 YDOYT(N)t[-----y]|^{E9,03}twkyhy ZYm krty
 YDOEt AYK pt[y] |_{d16,05}-----

§§ 53-54 “When Wahnām saw (that) the gods had given Us *xwarrah* and rule over the land (then) he knew: “For the sorcery that I have performed...”⁶³

⁶⁰ All other occurrences in Narseh's inscription read MP **OL BBA ZY LNE**, corresponding to Pth **OLYN TROA** “to Our Court”, cf. Humbach- Skjærvø 1978-1983, 3.1: 89. However here faint traces of a roundish letter are preserved, possibly enough to suggest the reading adopted in our text. Given the vast lacuna, another possible reading, otherwise unattested in the inscription, is [MLKA ML](K)An BBA the “Court of the [King of] Kings”.

⁶¹ See Skjærvø 2006a: 120-121. Here we have chosen to read *weh-mān*, Skjærvø's third alternative.

⁶² Humbach-Skjærvø 1978-1983, 3.1: 52.

⁶³ On this translation see Humbach-Skjærvø 1978-1983, 3.2: 85, who suggest that “[y]'ztn is probably the agent of Pa YNTNt (The gods gave/have given)”.

While on the contrary blocks 16\17 and 17\18 partly fill a long lacuna in § 55:

|^{E16,03}AY(K yzd')[n] (GD)[E] (W št)[ry]|^{E17,03} (W)[...]t(y?) nwky
 |_{d6,06}-----|_{d7,06}-----|_{d8,06}-----|_{d9,06}[nwk
 (klp)[kyhy?]|^{E1,04}[W n]yw'pkyhy OL nr|^{E2,04}shy MLKAn ML|^{E3,04}[KA
 k]rpkpy⁶⁴-----[OL] nrysh[w |_{d10,6}-----
 -----YH]|^{E4,04}BWNd
 |_{d11,06}-----

§ 55 "... **that** they gave **the *xwarrah* of the gods and realm and ...
 new beneficence** and appropriateness to Narseh, King of Kings ..."

In line four block E6 reveals that there was no pact, though the precise context of this statement is not to be understood. Possibly it refers to the lack of any agreement between the different pretenders to the throne, or more probably among Sasanian aristocracy, apt to justify the coronation of Wahrām III.

|^{E5,04}-----|^{E6,04}--](l) W dšny LA YHW|^{E7,04}[WN]-----
 -----|_{d13,06}-----|_{d14,06} HWE[n]t šwgw[n
 [w]|^{E8,04}hwn'm OBY(DWN)t-----[nr]|^{E9,04}shy ZY 'pcwtGDE
 |_{d15,06}[w]hwn'm OBDWd LBRA|_{d16,06}-----|_{d17,06}-----

§ 56 "...and there is **no pact**... they are, how Wahnām does, away
 [to ?] ... Narseh ī Abzūd^{xwarrah}"⁶⁵

In the next passage (§§ 57-58), the new materials reveal that the person whom Narseh had ordered to go forth and seize Wahnām was Narseh (?) ī Bay:

⁶⁴ Thus restoring Skjærvø's original reading (Humbach-Skjærvø 1978-1983, pt. 2, table E), against Skjærvø 2006a: 120.

⁶⁵ See Humbach-Skjærvø 1978-1983, pt. 3.2: 92.

^{|E16,04}W [LW](TE) bgš(hp)[whry]^{|E17,04} (W)WN n(rs)[hy ZY] bgy
 prhš_{e6,01}[...](^)[...] (n's\py)[...]dl_{e7,01}-----
 ZY [...] ^{|E1,05}šDRWNm AYK whw^{|E2,05}n'm OHDWN W OSLW^{|E3,05}[N
{e8,01}-----{e9,01}-----_{e10,01}A]SR[W]
 §§ 57-58 “and with Bay-Šābuhr We sent forth Narseh (?) [ī]
 Bay of...[with an order] that: “Seize Wahnām and bind him!”

The next passage confirms Skjærvø's reconstruction, adding that Bay-šābuhr was a Landholder (*šahrdār*):

-----^{|E6,05}-----](OL BBA) ZY (LNE)[---^{|E7,05}-----bgšhpw]
_{e12,01}[W]š ASRt OLYN T[ROA _{e13,01}HYT]YW W bgš[hypwhr]
^{|E8,05}hry š(t)[rd'ly] -----[whw]^{|E9,05}n'm OSLWN
{e14,01}-----{e15,01}-----_{e16,01}-----
 §§ 58-59 “....and bring him bound to Our Court. And Bayšābuhr **the Landholder** ... bound Wahnām”

The combined evidence of Middle Persian E16\17,05, E17\18,05 and of the Parthian block e6,02 taken together with Middle Persian E1 sheds new light on § 60:

^{|E15,05}-----
 W skn MLK_{e5,02}A AYK YDOEt AYK whyn'm_{e6,02}AHDt
^{|E16,05}b(sty W špšpy)l(^)l^{|E17,05}y [...] (?) W Š(M ?)[...](kd?) n[---
 W ASRt Wš spsy_{e7-9,02}[rdr]-----
^{|E1,06}[...]WN W PWN BBA^{|E2,06} [z]wlp'd[ky] m [...

^{|E3,06}YTY^{|E4,06}BWNst

§ 60 “And when the King of the Sakas knew that Wahnām **had been taken and bound, and the Swordbearer ...him... and the name** ... at Court ...he sat in a lowly position”⁶⁶

⁶⁶ See further Skjærvø 2006a: 120-121.

Line six of the new Middle Persian blocks is unfortunately too damaged to shed any new light on §§ 61-62, though the layout of § 62 should be modified in respect to what proposed by Humbach and Skjærvø.⁶⁷ Moreover, block e6,03 contains some new information:

|E5,06-----|E6,06--g](^ˈ)s(y) M[E] (whwn)[^ˈm]
 -----|e10,02MNW [O]LHw drwzn[p]y|e11,02-----
 |E7,06-----|E8,06y]z(d^ˈn) [...]L[...] [-----
 |e12,02nhwš[t] pty y^ˈztn W LN|e13,02 TWB pty ^ˈry^ˈn hštr
 |E9,06hmky štry HWYT[N]
 |e14,02-----

§ 61 “...who to that liar ... the throne ... since Wahnām was first against (?) the gods and Ourselves, then against (?) Ērānšahr (and) the whole Land...”.

-----|E16,06H(NA) [...]š ANE M[|E17,06--[YKT]LWNn
 |e3,03NPŠE mdp[...]k[...]e4,03nhwšt kwšt MNW r|e5,03^ˈd OL[Y]N
 W(m) AD(Y)[N]|F1,01-----|F2,02-----|F3,03-----
 QYMT LHw KTŠWm⁶⁸ |e6,03 Wš wtr(y) OBDWm W BAT(R)

§ 62 “...own...first kill the one on account of whom (he) rose against Us, him We shall kill **and will do even worse and afterwards....**”

All in all, from a general point of view, we can now say that block E7 was a very small block and that possibly block E18 never existed as an inscribed block. Given the number of new blocks discovered since Humbach and Skjærvø’s standard edition, we believe it useful to briefly present here the complete translation of tier E, highlighting the new portions:

§ 47 [...Then When] We arrived in ^ˈwt__štr^ˈn, [then] We sent a letter to the King of the Sakas:

⁶⁷ Humbach-Skjærvø 1978-1983, 3.1: 55-56.

⁶⁸ See Humbach- Skjærvø 1978-1983, 3.2: 96.

§ 48 „.....saying: [that throne of your father and] ancestors which you have in an unfitting way sat upon [that you should ... ?] forth and [you should come ?] forth to [Our] Court”.

§ 49 And that ambassador to **the Court** [of the King] of Sakas [that: ?]

§ 50 ...šp are. And We in great elation and with a happy heart [went] to Asōrestān, to [... and] **settled in** (?) the city of Wahrām-Šābuhr...

§ 51 [and] **the King** [of the Sakas] **when** he saw Our letter he set loose from (his) head the big ... diadem and threw [it? away?] from the throne ... and honour.⁶⁹

§ 52 (...) **the Court of the Sakas from ... Ohrmazd ī Warāz went and in a better spirit remained** at one side.

§ 53 When Wahnām saw (that) the gods had given Us *xwarrah* and rule over the land (then) he knew:

§ 54 “For the sorcery that I have performed there is henceforth no (other) salvation than (?) by the gods and the King [of Kings ?].

§ 55 “And for the deception and (evil) behavior ... of you ...**that** they gave **the *xwarrah* of the gods and realm and ...new beneficence** and appropriateness to Narseh, King of Kings ...”

§ 56 And then also did We ... that deception ... and there is **no pact** ... they are, how Wahnām does, away [to...] Narseh ī Abzūd-xwarrah and Narseh (?) ī Bay-Šābuhr ... may [they ?] swear.

§ 57 [The army ?] which was with the King of the Sakas and Wahnām before ... **and with Bay-Šābuhr We sent forth Narseh (?) [ī] Bay of ...**

§ 58 [with an order] that: “Seize Wahnām and bind him! Put him on a maimed donkey and bring him bound to Our Court”.

§ 59 And Bay-Šābuhr the **Landholder** ... bound Wahnām and brought him bound on a maimed donkey to the city of Wahrām-Šābuhr, to Our Court.

⁶⁹ Paragraphs 50-51 suggest that Narseh wrote to Wahrām once that he had reached Wahrām-Šābuhr.

§ 60 And when the King of the Sakas knew that Wahnām **had been taken and bound, and the Swordbearer ... him... and the name ... at Court ...he sat in a lowly position**”

§ 61 And We commanded (?) [that:] “...who to that liar ... the throne, since Wahnām was first against (?) the gods and Ourselves, then against (?) Ērānšahr (and) the whole land, him first ... We shall punish. ”

§ 62 “...own...first kill the one on account of whom (he) rose against Us, him We shall kill **and will do even worse and afterwards....**”

The only new Middle Persian block in tier F, F18, is quite important for the reconstruction of the architectural structure of the tower, since the text is here rather irregularly inscribed on what appears to be the base of the left semi-column of the façade. From the point of view of contents, this block only adds minor details.

The fifth line of Middle Persian tier F corresponds to the first line of Parthian tier f, for which we have now discovered a new block, this also relevant for the architectural structure of the tower, since the lines are inscribed on the bell shaped base of the right column, showing that the tower was decorated with semi-columns on each of its four corners. Moreover, Parthian block e6 covers the first four lines of Middle Persian tier F.

The new evidence brings little novelty to our understanding of §§ 64-65, the only new words being Pth. **k HD yw'r LHwyn ALHYN** on block e6,04, which partly run parallel to the corresponding Middle Persian text.

^{|F17,01}[L]NE MNW ^{L|F18,01}[**KWM... ..**]^{|F1,02}-----^{|F2,02}[PWN k]^{rpkhyhy}
^{|e17,03}-----^{|e1,04}-----^{|e2,04}-----

^{'yr}[^{'n}^{|F3,02}štry]
^{|e3,04}ry'n hštr

§ 64 “We whom you, [by your ?] grace, Ērānšahr's....”

W HT ^{'yw}b'l[y]^{|F7-8,02}-----
^{|e6,04}**W k HD yw'r LHwyn (A)LH(Y)**^{|e7,04}[N]-----

§ 65 “And if once **His Majesty (obl.)...**”

^{F17,02}MLKA m[^{F18,02}s]y W Š]P(Y)[R]^{F1,03} LA YHWWN?^{F2,03}Z]Kšn
 -----|_{e15,04}-----

šhp[wh]^{F3,03}ry]
 -|_{e16,04}-----

§ 65 “... (no) King (was) greater **and better** ... that they ... Šābuhr”

In line five, block e6 adds the title *Šāhānšāh* after the name of Narseh's father, Šābuhr.

-----|^{F9,03}HT 'y[w]b'ly šhp|^{F10,03}[whry]-----
 |_{e5,05}[W] LHwyn 'k HD y'wr|_{e6,05} (š)hypwhr MLKYN MLK(A)
^{F11,03}psd'lyk krt
 |_{e7,05}-----

§ 66 “And if once they had made Šābuhr, **King of Kings**, guardian
”

In the following passages, all belonging to §§ 67-69, the new blocks only confirm the known versions, though there still is some doubt about the word reconstructed as Pth. **hmwšt** by Humbach.

^{F17,03}l'dy hl^{F18,03}[mw](š)t(y)⁷⁰A[Pšn]--|^{F1,04}-----|^{F2,04}HNA 'wgwn
 -----|_{e12,05}[h]m[w]št Wšn wyšry ZK|_{e13,05}-znk⁷¹
 krt|^{F3,04}-----
 OBDt AYK LN MN

§ 67 “For the sake of ... they gathered and took the following decision⁷²:
 We from...”

⁷⁰ The reading found in Humbach-Skjærvø 1978-1983 is based on Humbach's reconstruction of the Parthian form: ***hmwšt(y)** corresponding to MP ***hmwšty** (Humbach-Skjærvø 1978-1983, 3.2: 104). However the badly preserved F18,03 could also admit an unexpected reading [**hmw**](s)ty. Less convincing the alternative solution to go back to Herzfeld's suggested reading of the Parthian passage and reconstruct the MP as [**mh**](s)ty (see further n. 56), which does not seem to fit the context.

⁷¹ Pth **ZK-znk** = Mp **HNA-'wgwn**.

⁷² See Humbach-Skjærvø 1978-1983, 3.2: 104.

|^{F11,04}W PWN yzd'n krtk'lyh[t]ly '[y]wp Š[PY]R
W pty y'ztn|_{e6,06} **hw-krtknyst**r '[--|_{e7,06}-----

§ 68 “And more active in doing good for the gods or better...”

[šhp]|^{F17,04}whry ML[KA]|^{F18,04}(')yw YM(LLW)Nt|^{F1,05}-----
e11,06-----|_{e12,06}---L]Hw hyp YMLLWt |_{e13,06} ME LN
|^{F2,05}KN YCBEt AYKn
KN k'mywt|_{e14,06}----

§§ 68-69 “...King Šābuhr, let him say so, because we wish that...”

|^{F3-4,05}[ZNE 'ry'n-štry W hmky š]|^{F5,05}try MROHY ZK
e14-16,06-----|_{f1,01}[h](w)tw(h)[y]-----
YHW[W]|^{F6,06}N MNW yzd'n nshty|^{F7,06}--
|_{f2,01} MNW y'ztn n[y]sh[t] HWE d

§ 69 “... He should be king of Ērānšahr and of this whole country, whom the Gods have made ready⁷³...”

In § 70, block F18,05 adds the title *Šāhānšāh* after the name of Ardaxšīr:

|^{F17,05}W MN 'rt[hštr]|^{F18,05} [M](LKA)n MLKA|^{G1,01}-----|^{G2,01}pr'c
-----|_{f11,01}-----
hmky štr[y]
|_{f12,01} [...] h[št]r

§ 70 “And from Ardaxšīr **King of Kings**... onwards, the whole Land...”

Two new blocks belonging to tier G have been identified in recent surveys. The first is the one we have called G1 and is made up of two fragments, PK45 and PK46 (G1a and G1b), the latter already known. Taken together, these two fragments allow us to reconstruct a small part of the

⁷³ On Pth. *nisāž*- see now Durkin-Meisterernst 2004: 254.

original block G1.⁷⁴ On the contrary G14 (possibly covering also G15) is a large and well preserved block, falling in a vast lacuna of the MP text and interesting especially for lines two and three, which both fall in *lacunae* of the Parthian text.

Moreover, the first four lines of Middle Persian tier G are also covered by the Parthian block f1. The only readable word in f1,02, and even this only hypothetically, is **(g)t(w)**:

|G8-10,01|-----
 |f1,02| [...] **(g)t(w)** [...] |f2,02| [..] šst OBDt⁷⁵ W š'ywtl_{f3,02} HWYndy 'dynš

 LN MN NPŠEl_{f4,02}---
 § 71 “ ...Had sat(?) **on the throne** (?) and had ruled (?), then also
 We from our own...”

The next two passages contain little new evidence, at best confirming what we already know:

|G13,01|-----
 |f6,02| ME 'ry'n hštrl_{f7,02} LHwmn KN k'mywt AYK LHw rnz W
 |G14,01| **ME OLEšn ORHYAn ('n)** [----|G15-16,01|-----
 |f8,02| 'bgm ME LHwyn ALHYN|f9-11,02|-----
 §§ 71-72 “...of Ērānšahr. Thus we wish this, that the pain and trouble
 which His Majesty...”
 |G7-9,02|-----
 |f1,03| [...] **(p\s)** [...] |f2,03| ptyr'mstr W wyšthw |f3,03| HQAYMWd 'k hštrdry
 §§ 72-73 “....Will stay more peaceful and confident. If the Land-
 holders...”

⁷⁴ The evidence provided by block G1 suggests that there may never have been a block G16, compare G1,05 with the reconstruction of G16,04 - G1,05 (depending on f14,05 and G1b) suggested by Humbach- Skjærvø 1978-1983, pt. 2, plate E.

⁷⁵ The verbal form **[n]šst OBDt**, should it so be reconstructed, should be interpreted as a *potentialis* as attested in Manichaean Middle Persian (see Durkin-Meisterernst 2004: 207).

G14,02 provides the only evidence for a passage in § 73 that Skjærvø had correctly reconstructed, though only in part, on the comparison with parallel passages.

|^{G13,02}-----
 'ry'n_{f8,03}hštr MN LN ptyr'mstr (W)_{f9,03} [wyšthw-----
 |^{G14,02}dšty OBYDWNt⁷⁶ W 'twky H(WE)[--|^{G15,02}-----
 |_{f10,03}HHSNtn W p'rsn k'ry prmtyn-----|_{f11,03}-----]
 -----|^{G16,02}-----|^{G1,03}-----d'|^{G2,03}tny
 -----|_{f12,03}W [..]wn'n W dwšmnyn ptyshw|_{f13,03} [YNTNt]

§ 73 “(More able) than Ourselves **to maintain** (?) Ērānšahr more peaceful and confident **and able** to govern (?) [the things of the Persians] ... and ...(to answer)... and enemies”

In the following passage only one letter is readable in f1:

|^{G5,03}-----['tw]|^{G6,03}ky HWE štry d'|^{G7,03}[stny]
 -----|_{f1,04}[... ..]g[...]|_{f2,04} HWYt hštr HHSNtn|_{f3,04} W prmytn
 § 73 “...[who] is able to keep and govern the kingdom”

The next passage, though falling within a long lacuna and therefore difficult to contextualize contains an interesting reference to the *xwarrah* of the king:

-----[OR]|^{G14,03}HYAn PWN LOYŠE GDE SGD(E)|^{G15,03}--
 W 'z't W|_{f9,04} [p'rs W prtw – ca. 30ll.-----|_{f10-11,04}-----
 § 75 “...and the Nobles and [the Persians and the Parthians]
Majesty (obl.) firstly⁷⁷ **the xwarrah, homage** ... we (are glad?)...”

⁷⁶ The wording of the Middle Persian version differs from what reconstructed by Humbach-Skjærvø 1978-83, 3.1: 62, that we have left in the text only for the sake of comparison.

⁷⁷ See Skjærvø in Humbach-Skjærvø 1978-1983, pt. 3.2: 96.

The next two passages, incorporating also the two surviving lines of G1, confirm the readings of the Parthian version.

-----|^{G1,04}--](H)NA CB(W) [ʔp](l)ʔ(s)[y]⁷⁸ |^{G2,04}OBYDWNt
 |_{f12,04}AYKmn LKM ALHA pty ZK CB[W]|_{f13,04} [ʔ]prʔs OBDWNt ʔk LKM
 HTtn [... ...] MN KZYnky|^{G3-5,04}-----
 |_{f14,04} ALHYN MN hsynkPNE |_{f15,05}-----|_{f1,05}H(QA)YMW[...]
 -----|^{G6,04}LKWM ORHYAn ptgʔm|^{G7,04}---
 |_{f2,05}[...] šwgwn ZK ME M[N]|_{f3,05} LKM ALHYN ptgm HYTt

§ 75-76 “...that Your Majesty informs us on this matter. If your Majesty (MP: You) from old ... **stand**...just as that message which was brought from your majesty...”

-----|^{G14,04}AYK yzdʔn swty ADYN plkʔs⁷⁹
 -----|_{f12,05}yʔzn whykr ʔdyn ʔsktr
 |^{G15,04}-----|^{G16,04}-----ʔyrʔn|^{G1,05}[š](t)ry ADYN drwd(s)tly
 |_{f13,05} YMΘAEt W ʔryʔn hštr|_{f14,05} ʔdyn⁸⁰ drw[y]štstr
 [W N]|^{G2,05}TLWNtwmy YKOYMWNT
 W NTRt|_{f15,05}[str]-----

§ 78 “...when the advantage of the gods (will) then (reach) its highest degree (and) Ērānšahr will then be healthier and more protected”

Similarly, the last two lines of G14 confirm the reading of the Parthian version, filling in the occasional gap:

|^{G13,05}-----|^{G14,05}krtly ʔynyʔtn AYŠ
 |_{f12,06}pty yʔzn ŠME hmk hštr|_{f13,06}[... ...]k OBDt AHRNtn|_{f14,06} AYŠ

⁷⁸ The written surface is today less readable than in Herzfeld's days. Humbach and Skjærvø (1978-83, 3.1: 63) still read ʔplʔsy.

⁷⁹ The wording of the two versions differs quite markedly. Middle Persian **swty** “profit”, “advantage” corresponds to Pth **whykr** (cf. MPth, MMP **whygʔr** “beneficent”); while Middle Persian **plkʔs** (*fragāhʔ*?) corresponds to Pth **ʔsktr** (cf. MPth **ʔskʔdr** “Higher, in an higher degree, more”, for further references see Humbach-Skjærvø 1978-83, 3.1: 81).

⁸⁰ The last word corresponds to G1,05.

hmgwn(k)[y]^{G15,05}-----^{G16,05-1,06}-----
 hmygwnk LA YHWt_{g1,01}-----_{g2,01}y'ztn prksywt HWYt

§ 80 "...in the name of the gods had made the whole land..., otherwise no one else was like You ... the gods have favored (?)".

^{G13,06}-----^{G14,06}štld'ī'n (W)
 -----_{g15,01}[...]k W 'sktr H[...]..._{g16,01}W hšt[r]drn

[B]L[B]YTAⁿ W L(BA)[n]^{G15,06}-----
 BRB[YTAⁿ]_{g1,02}-----_{g2,02}W 'z'tn W ktkhwtwyn
 ----^{G16,06-1,07}-----
_{g3,02}[W p'rsn W prtwn]

§§ 82-83 "...and in a higher degree ... And (to) the Landholders, the Princes, **the Grandees**, the Nobles, the Houselords, [the Persians and the Parthians]..."

The last block to be presented here is H5, belonging to the final portion of the inscription and of considerable interest since it reveals the names of some previously unknown followers of Narseh, such as Warāz (..) of Rāmān and Razmāgōy:

^{H4,01}-----^{H5,01}-----] [štld'r]'n [^{H6,01}]-]hmky
{g7,03}[']k YDOEm AYK 'km MN{g8,03}-----

BLBYT[An 'yw]p [BYN ^{H7,01}'yr'n]štry W hmky^{H8,01}[š]try
{g9,03}BRBYTAn 'km B 'ry'n{g10,03}hštr W hmk hštr

§ 87 "If we knew that there is either among the **Landholders** [and] all the Princes or in Ērānšahr and the whole country..."

ALŠA ZY^{H4,02}-----^{H5,02}-----]M(K)BLWNt kr(p)[kyhy?]
{g4,04}gtw ME y'ztn YNTNt{g5,04}-----

(YH)W(W)N W OD^{H6,02} [p]lškrty zm'n štry YHS^{H7,02}[NN]t
_{g6,04}k HWE_d W HN prškrt _{g7,04}[z]mn hštr HHSNW[...]

W plm'dty W PWN NPŠ^{H8,02}E GDE W štry š'ty YHWWNt
 W prmywt_{g8,04}-----_{g9,04}W hštr š't YHWEt

§ 89 “...the throne which the gods gave ...**receive, grace was** ... and hold and govern the country till the time of Renovation and be content of your own *xwarrah* and country.”

^{|H4,03}-----^{|H5,03}(b)ly W w(l)ʿc [...l(y?) (ZY) lʿmʿn
^{|g4,05}[--]pty W pgrymbkl^{|g5,05}-----
^{|H6,03} W sydy ZY hl(w)ʿnyk šykʿn W pl^{|H7,03}[ʿk]y ZY myhmʿn
^{|g6,05} sdy <-> hwrwnyk š[y]kn W^{|g7,05} [p]ʿk mhymʿn
 W bylwʿn ^{|H8,03} ZY spndwltʿn
 W byrwʿn <->ʿs[pl^{|g8,05}ndwrtn]

§ 92 “-bed and Pgrgmbk (...)bly, and Warāz-(...) of Rāmān and Šēd the Šykʿn of Harēw and Pāk-Mehmān and Birwān Spandwardān”

^{|H4,04}-----[Z]^{|H5,04}Y dwnbʿ(n)cy MROHY W lzm^{|H6,04}ʿgwdy
 -----^{|g4,06}sʿtrp dwnbʿwl^{|g5,06}[ntš]-----
 ZY shwlcʿn MROH[Y]^{|H7,04}---[p]wlsmʿn ZY mwkʿn MR^{|H8,04}OHY
^{|g6,06}spwlšn-----h[wt]wyl^{|g9,06} W pwrʿsmn mwkn hwtwy

§ 93 “and Satārap **Lord of Dumbāwand**, and **Razmāgōy** Lord of Sāxwal (and) Pūrasman⁸¹ Lord of Mūgān...”

^{|H4,05}-----^{|H5,05}pʿtk(wsy) (PWN pndy) W plʿdl^{|H6,05}y]sy ZY
 -----^{|g3,07}-----^{|g4,07}-----pdys ME

L[N]E YKOYMWNd W hml^{|H7,05}[k]y štry PWN nwky BOYH^{|H8,05}WNm
 L[N ^{|g5,07}-----^{|g6,07}Y]BOE[m]

§§ 93-94 “...**district(s)** stayed by Our **advice and** counsel. And we claimed the whole realm anew”

⁸¹ Possibly so, on the parallel of names such as *Pūr*, *Pūr-Ādur-Māh* (Gignoux 1986: 149-150), or less probably a compound name with *pur* “full” as its first member, e.g. *Pur-xwarrah* (Gignoux 1986, p. 150). Differently Humbach-Skjærvø 1978-83, 3.2: 128.

DIGITAL GRAPHIC DOCUMENTATION OF THE NEWLY ACQUIRED BLOCKS OF THE PAIKULI MONUMENT

BY

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The graphic documentation of the inscribed and decorated blocks belonging to the Paikuli monument has fulfilled the twofold function of documenting their prospect and plan views while verifying the congruity of possible connections to adjoining blocks (through the examination of block-ties) and in the reconstruction study of the whole monument.

The photogrammetric documentation, in collaboration with Gianfilippo Terribili, of the inscribed blocks has been achieved during the spring of 2009 within the activities carried out at the Museum of Sulaimaniya as part of the 'Paikuli Project in the Kurdish Region of Iraq', funded by the 'Task Force Iraq' of the Italian Ministry of Foreign Affairs.

This documentation was obtained through the use of Menci Software's ZScan system (3D models and true orthophotographs), which allows the creation of 3D models of surfaces. The processing of such models made it possible to create mosaics of metrically corrected and measurable orthorectified images.

The ZScan system is a useful tool for the acquisition of point clouds by using a high-resolution digital SLR camera with fixed lens, calibrated in the Menci Software laboratories, a precision slide with a recirculating ball bearing carriage and software based on an algorithm for the multifocal analysis of images. Each 3D model is created using 3 images taken from fixed positions along the precision slide. The point clouds obtained with this system show colors with photographic accuracy, and it is possible to visualize the related raster texture perfectly superimposed on every 3D model.

The post-processing of the point clouds (editing, merging, creation of orthophotos and export) were performed through the ZMap software, also produced by Menci Software.

In order to make best use of this digital photogrammetric system, every block was positioned on a rotating platform and then photographed from all angles. The 3D model of the block thus created enabled the production of orthophotomosaics representing their plan and prospects.

Independently from the technical methodology employed, the survey and the graphic documentation are essential means for the knowledge and the study and the anastylosis (reconstruction) of monuments. Specifically, the employed methodology enables both the correct interpretation of the architectural structure of the Paikuli monument (3D survey of the structure's remaining nucleus *in situ*), both to associate to it the study of the inscribed and decorated blocks now preserved in the museum of Sulaimaniya. The set of data gathered through the reading and interpretation of the inscriptions paired with a detailed graphic documentation (in plan and prospect), finalized to the exam of the rock-carving techniques and of the significant distinguishable marks found on the block surfaces (block-ties present on the upper-lateral edges of the blocks) have enabled the placement of each block, found during the excavations and site surveys carried out during the Italian cooperation project in Iraqi Kurdistan starting in 2006, in its relative original position within the monument's walls. Below are some examples of block graphic documentation, in plan and prospect, and the position of the block-ties as seen from the top plan view.

In certain cases, the surface deterioration has hindered the identification of the block-tie recess location, therefore the positioning of such blocks has been limited to the sole philological reading (Middle Persian blocks C2 and E16). Moreover some of the blocks documented by Herzfeld have not been found among those nowadays held in the Museum of Sulaimaniya, for this reason, without the availability of adjoining blocks, it has not been possible to verify then position of E6, E8, E17, F18 and G14.

Glossary

	New blocks	Old blocks and other evidence
A/		
<i>ADYN</i> , “then” (Pth <i>’dyn</i>)	E17,06; G14,04; G1a,05	C7,01; C6,04; D3,02; E4,04; F12,02; F13,03
Pth <i>AHDt</i> , “taken” (MP <i>OHDWN</i>)	e6,02	a17,06
<i>A[H](R)[N]</i> , Pth <i>AH(R)N</i> , “other”	D2,02; Pth a5,04	B13,04; D10,02; H14,05; Pth b10,02; b15,03; c2,05; c11,05; f13,06 (-tn)
Pth <i>’hwrmd wr’z</i> v. [<i>’whrm</i>](z)- <i>d(y)</i> (<i>ZY</i>) <i>wr(’)[c]</i>		
Pth <i>’k</i> v. <i>H(T)</i>		
Pth (A) <i>LH(Y)[N]</i> v. <i>ORHYAn</i>		
<i>’(l)mn[y]</i> , “Armenia” (Pth <i>’rmy</i>)	D2,01	A4,02; B9-10,03; B10,04; D6,01
<i>AMT</i> , Pth <i>AM(T)</i> , “when”	C2,04; Pth a12,05	A3,04; B6,01; Pth b2,01; b8,06 [uncertain]
(<i>’n</i>)[	G14,01	
<i>ANE</i> , “I, me”	E16,06	KNRb 1, 3, 27; KKZ 1, 17, 18; KNRm 1, 49, 73; ŠPs II, 1
Pth [<i>’</i>](<i>p’ryk</i>), “other” (MP <i>’plyk</i>)	c12,06	b5-6,03; c3,03
Pth <i>’p(r)</i> , “about, on, over” (MP <i>QDM</i>)	c9,05	a7,03; c3,06; e10,01
Pth <i>’pr’s</i> , “information, report” (MP <i>’pl’sy</i>)	a12,02	a14,02; f13,04
<i>’(p)stpty</i> , “rebellious” (Pth <i>’pystpy</i>)	D2,03-D3,03	D3,02
<i>A[Pšn]</i> , “and they”	F18,03 [uncertain]	A14,03; C13-14,02; D14,06; F11-12,03
(<i>’p</i>)[<i>y</i>] <i>n(y)[d’pk]</i> , “unfitting” (Pth <i>’pyyny’pk</i>)	E8,01	Pth d3,04
Pth <i>’rmnyn</i> , “Armenians” (MP <i>’lmn’n</i>)	a5,05; c12,04	c7,05
Pth [<i>’</i>] <i>rth(št)r</i> , “Ardaxšīr” (MP <i>’rthštr</i>)	a5,06	c3,02; c4,02; c12,02; c15,06; e13,04
Pth <i>ASRt</i> , v. <i>bsty</i>		

	New blocks	Old blocks and other evidence
Pth <i>ʾswr(s)tn</i> , “Asōrestān” (MP <i>ʾswrstn</i>)	c4,03-c5,03	a6,04; b10,04; b15,04; b4,05; b4,06; c4,03; c11,05; d14,04
<i>l(ʾ)s(y)</i> ⁸²	E6,06	
<i>ʾtwky</i> , “able, capable”	G14,02;	A11,03 [uncertain]; F15,04; G6,03; G12,07
Pth <i>(ʾ)trwp(rn)bg</i> , “Ādurfarrbay” (MP <i>[ʾtwr]p[r]nbg</i>)	c12,02	c10-11,04; c15,05
Pth <i>A(TYt)</i> v. <i>YATWN-</i>		
<i>[ʾwh](l)[mz]d(y)</i> , “Ohrmazd” (Pth <i>ʾhwrnzd</i>)	C2,05	B7,04
<i>[ʾwhrm](z)d(y)</i> (ZY) <i>wr(ʾ)[c]</i> , Pth <i>ʾhwrnzd wrʾz</i> , “Ohrmazd Warāz”	E17,02; Pth c5,02	C15,04; Pth a7,06
<i>[ʾ](wnd)ykn</i> , “of Undīgān” (Pth <i>ʾwndykn</i>)	D2,05	B5,02; D13,06; D14,06
AYK, Pth AYK, “that, so that, because, when, where, than”	D1b,01; E8,02; E16,03; G14,04; Pth a12,05	B8,03; C5,02 (-šn); D8,04; F13,01; F13,02; F2,05 (-n); H3,01; H3,02 [uncertain]; Pth b8,01; b8,04; c3,04; d1,02; d15,05; e5,02; e13,05; f7,02; f7,04; f12,04 (-mn); g4,02; g10,02 [uncertain]; g6,03; g7,03
<i>ʾynyʾtn</i> , “otherwise”	G14,05	KSM 41
AYŠ, “somebody; anybody” (Pth AYŠ)	G14,05	B7,06; H8,01
<i>(ʾ)yw</i> , “particle of exhortation” (Pth <i>hyp</i>)	D1b,02; F18,04	B11,03; B2,04; G2,03
Pth <i>ʾz(ʾ)t</i> , “Freemen” (MP <i>ʾcʾt</i> , <i>ʾzʾt</i>)	a13,03	a16,02 (-n); b6,02 (-n); c1,03; c10,05 (-n); e10,03(-n); f8,04; g2,02
O (ʾAYIN)		
Pth <i>OBdk</i> , “servant” (MP <i>OBdky</i>)	a12,05; a12,06	MP B10,02

⁸² See above n. 8.

	New blocks	Old blocks and other evidence
Pth <i>[O](BDt)</i> , “made” (MP <i>OBYDWN</i>)	c12,01	a14,01; a16,03; b12,04 [uncertain]; c11,03; e13,05; f2,02; f13,06
Pth <i>OBDWd</i> , “he did”	a12,02	b8,04; d15,06
Pth <i>OBDWm</i> , “I do”	e6,03	c15,05
<i>OBYDWNt</i> , “he does” (Pth <i>OBDW-</i>)	E8,04; G14,02	A15,02 (-); A3,04 (-n); A7,04 (-n); A14-15,04 (-d); B6,01 (-m); D13,02 (-); D13,04 (-m); E14,06 (-m); F6,01 (-m); G2,04
<i>OD</i> , “until” (Pth <i>HN</i>)	H5,02	D7,02
<i>OL</i> , Pth <i>OL</i> , “to”	E6,05; Pth a5,03; a12,05	B7,03; B10,03; B10,04; B15,04; B6,05; B12,06; C12,02; C3,05; C5,06; D4,03; D6,03; D1,04; D14,05; D3,06; D11,06; E14,01; E4,02; E2,03; E13,05; H2,01; H8,05; H12,05; H17,05; Pth b10,01; b8,02; b12,02; b2,03; b6,04; b10,04; c10,01; c4,04; d3,01; d15,02; d1,03; d14,04; g15,07
<i>OLEšn</i> , Pth <i>LHwyn</i> “they”	G14,01; Pth e6,04	Pth b10,06; e5,05; f8,02
<i>ORHYAn</i> , Pth <i>(A)LH(Y)[N]</i> , “majesty” plural of majesty	G14,01; G14,03 [uncertain]; Pth e6,04	G6,04; H9,01; Pth f8,02; f14,04; f3,05; g2,04
<i>[OŠMEN]d</i> , “they hear” (Pth <i>AŠMOYWnt</i>)	D1b,01	D14,04; Pth b15,02 (-nt); b7,05 (-d); c3,04 (-nt); d1,02 (-nt)
B		
Pth <i>BAT(R)</i> , “afterwards, thereafter” (MP <i>AHR</i>)	e6,03	a7,05 (-š); a16,05; d1,06 (-š); g4,03 (-š); g9,04
<i>BBA</i> , “court” (Pth <i>TROA</i>)	E16,01 [uncertain]; E16,02; E6,05	E14,01; E13,05; H8,05; H12,05
<i>bgšhpwhry</i> , “Bayšābuhr” (Pth <i>bgš[hypwhr]</i>)	E16,04; E8,05 [uncertain]	E11,04; Pth e13,01
<i>b(gy)</i> , “Bay”	E17,04	

	New blocks	Old blocks and other evidence
<i>[B]L[B]YTA</i> n, Pth <i>[B]R[BYTA]</i> n “the princes”	G14,06; Pth c9,05 [uncertain]	A17,02; B5,03; H6,01; Pth c15,01 (x2)
<i>l(b)ly</i>	H5,03	
Pth <i>BR[Y]</i> , “son”	a5,01	AS 2; AR 5; ANRm 3; ŠH 3; ŠKZ 1, 18, 19, 21, 30; ŠNRb 2; ŠTBq 2; ŠVŠ 6
<i>b(sty)</i> , Pth <i>ASRt</i> , “bound”	E16,05; Pth e6,02	E9,05; Pth a11,02; e12,01
<i>l(B)WN</i> ⁸³	E8,03	
C		
<i>CB(W)</i> , “thing, matter” (Pth <i>CBW</i>)	G1a,04	A14,02; H14,05
D		
<i>d’šty</i> , “maintained, kept”	G14,02	ŠKZ 31; KKZ 14; KNRm 45
Pth <i>dgl(t)</i> , “the Tigris” (MP <i>dglty</i>)	c5,06	MP D4,03
<i>drwd(s)tly</i> , “healthier” (Pth <i>drwyštstr</i>)	G1a-b,05	Pth f14,05
<i>dšny</i> , “the right hand”	E6,04	D7,04
<i>dwnb’(n)cy</i> , “of Dumbāwand” (Pth <i>dwnb’w[ntš]</i>)	H5,04	Pth g4,06; ŠKZ 29, 32
Pth <i>dwšmnyn</i> , “enemies”	a12,04	f12,03; g15,02
G		
Pth <i>(G)BRA</i> , “man” (MP <i>GBRA</i>)	a5,05	d11,01
<i>GDE</i> , “glory” (Pth <i>GDE</i>)	E16,03; G14,03	B12,03; H8,02
Pth <i>grmykšn</i> , “Garamean” (MP <i>glmykc’n</i>)	a12,03	a11,03; MP A15,03; A17,03
Pth <i>(g)t(w)</i> , “throne”	Pth f1,02	Pth d3,05; g4,04
H		
Pth <i>H[O]D(Y)B[</i> , “to depart”	c5,01	
Pth <i>HBDYWd</i> ⁸⁴ , “passed away”	a5,02	
<i>lh(cw)y</i>	C2,03	

⁸³ Possibly the last letters of **YHBWN**- “to give”; cf. Pth d15,05 **YNTNt**.

⁸⁴ See above n. 27.

	New blocks	Old blocks and other evidence
Pth <i>H(D)T</i> , “new”	a13,03	Nisa 100/3 ; 485/2 ; 617/3 ; 678/2 ; 680/2 ; 950/1 ; 971/2 ; 1230/2 ; 1318/2 ; 1389/2 ; 1609/2 ; 1693/2 ; 1730/4 ; 1949/2 ; 2038/2 ; 2042/3
Pth <i>HD-yʼwr</i> , “once” (MP <i>ʼyw-bʼly</i>)	e6,04	b9,03; e5,05
<i>hmgwn(k)[y]</i> , “similar, of the same kind” (Pth <i>hmygwnk</i>)	G14,05	Pth f14,06; MP KNRm 10, 16
Pth <i>J(hm)n</i> ,	c12,05	
<i>HNA</i> , “this” (Pth <i>ZK</i>)	E16,06; G1a,04	A14,01; A11,03; D4,02; F12,02
Pth <i>HQAYMWt</i> , “he rises, he stands” (MP <i>YKOYMWN-</i>)	a13,05-a14,05; c12,03; f1,05 <i>H(Q)(A)YMW[..]</i>	d11,02; g9-10,01; other forms: a7,03 (-tn); b9,03 (-Wnt); f3,03 (-Wd); f7,05 (-Wd); g16,04 (-Wnt)
Pth <i>(h)rk(p)[ty]</i> , “the Hargbed” (MP <i>hlgwpt</i>)	c9,05	a17,05; b5,01 <i>ʼrkpty</i> ; b10,03; c14,01; f3,04
<i>ʃhry</i> v. <i>bgšhpwhry</i>		
Pth <i>(h)štrdr(n)</i> , v. <i>štldʼlʼn</i>		
<i>H(T)</i> , Pth <i>ʼk</i> , “if”	D2,02; Pth e6,04	B14,05; F6,02; F9,03; G6,01; Pth b9,03; b10,05; b15,05; c3,05; e5,05; f14,01; f3,3; f13,04; g7,03
<i>HWE</i> , “to be” (Pth <i>HWE-</i> , <i>HWYE-</i>)	E17,01; G14,02	A3,05; B5,01; C5,01; C6,02; C7,03; E9,01; G6,02; G6,03
Pth <i>hw-krtknysr</i> , “more active in doing the good”	e6,06	<i>krtknysr</i> : f7,03 f6,05
Pth <i>hwtw(h)y</i> v. <i>MROHY</i>		
Pth <i>hwtwypy</i> , “rule” (MP <i>hwtʼdyhy</i>)	a5,03; a13,05	a7,05; b2,03; c11,06; d13-14,05; f7,05; f7,06; g10,02 [uncertain]; g16,03 ⁸⁵ .

⁸⁵ Always attested in the compound form **hštr-hwtwypy**, “rule, government”

	New blocks	Old blocks and other evidence
Pth <i>HWYN</i> , “they are” (MP <i>HWE</i> , <i>HWYTN</i> -)	c9,03; c12,05	e5,01 [uncertain]
K		
[<i>K</i>]ON, “now” (Pth <i>ʔws</i>)	D2,06	B5,01; G2,03
] <i>(kd?)</i> (<i>n</i>)[	E17,05	
<i>klpkyhy</i> , “beneficence, grace” (Pth <i>krpky</i>)	E17,03 [uncertain]; H5,02 <i>kr(p)[kyhy ?]</i>	B2,03; B9,03; C12,02; F2,02
<i>krty</i> , “made” (Pth <i>OBDt</i>)	G14,05	C5,04; E14,02; E9,03; F11,03; F2,04; F6,04
Pth <i>k(t)k</i> , “house, property” (MP <i>BYTA</i>)	a12,06	MP A14,03; B9,02
L		
<i>LA</i> , Pth <i>LA</i> “not”	E6,04; Pth a12,02; a13,02; a13,04	A14,02; B8,05; B7,06; C3,01; C7,01; C7,02; D13,05; D14,05; D4,06; Pth b2,04; b2,05 (2x); d15,02; d3,06; f14,06
<i>lʔmʔn</i> , “of Rāmān”	H5,03	
<i>LOYŠE</i> , “head” (Pth <i>RYŠA</i>)	G14,03	A8,03; C3,03; D4,05; E11,02; E11,06
<i>LBA</i> / <i>L(BA)[n]</i> , Pth <i>RBA</i> / <i>RBA_n</i> “Grandeess, big”	G14,06 (-n); Pth a12,03; c5,05	A13,03 (-n); B6,02; B5,03 (-n); C13,05; E9,02; G12,03; G12,04; Pth a16,02 (-n); b6,01(-n); c1,03; c10,05 (-n); e10,03 (-n); f8,04; f8,05
Pth <i>LHwyn</i> v. <i>OLEšn</i>		
<i>LK</i> , “Thou” personal pronoun 2 sg.	E8,01	C6,02
<i>L[KWM]</i> , “You” plural of majesty, (Pth <i>LKM</i>)	F17,01- F18,01 [uncertain]	G6,04; H9,01; H15,01; H2,02
<i>LNE</i> , Pth <i>LN</i> , “we, us”	C2,04; D2,01; E6,05; Pth a13,01; a12,02	A13,01; A17,01; A14,02; B14,02; B16,02; B7,03; B5,04; B11,05; B13,05; B16,05; C6,01; C6,06; D10,01 [uncertain]; D8,04; D13,04; D14,04; D5,05; E4,04;

	New blocks	Old blocks and other evidence
		E14,05; E4,06; H2,01; H9,02; H6,05; H9,05; Pth a16,06; b2,01; b4,02; b7,03; b8,03; c3,04; d11,01; d13,01 [uncertain]; d11,04; d1,05; d14,05; e12,02; e12,04; e13,05; e13,06; f3,02; f6,03; f8,03; f7,04; g10,04; g4,07
<i>]lš[</i>	C2,03	
<i>]L(WNn)</i> ⁸⁶	E17,06	
<i>[LW](TE)</i> , “with” (Pth <i>LWT</i>)	E16,04	C15,02; D10,03; D4,04; D10,04; D8,06; E13,04
<i>lzm'gwdy</i> , “Razmāgōy”	H5,04-H6,04	H2,04
M		
<i>mgw(pt)[y]</i> , “Mowbed” (Pth <i>mgw[pty]</i>)	C2,05	Pth c7,02
<i>ME</i> , “because” (Pth <i>ME</i>)	D2,03; E6,06 [uncertain]; G14,01	F13,02
<i>M(K)BLWNt</i> , “to receive”	H5,02	B15,03 <i>MKBL[WN]</i>
<i>MLKA</i> , Pth <i>MLKA</i> , “king”	D2,04; E8,02; F18,05; Pth a5,05; c5,01; c12,04; c9,06; e6,05	<i>passim.</i>
<i>[M](LKA)n</i> , Pth <i>MLKYN</i> , “of kings”	F18,05; Pth e6,05	A3,01; A7,01; A11,01; B8-9,03; C14,02; D14,03; D10,04; D10-11,04; E11,03; E2,04; F15,02; F6,03; G12,05; Pa a7,01; a11,01; b8,01; b9,05; b5-6,06; c2-3,01; d14,01; e13,04; e3,05; f8,01

⁸⁶ See above n. 17

	New blocks	Old blocks and other evidence
<i>MN</i> , “from, than” (Pth <i>MN</i>)	D2,01; E16,02 [uncertain]	A4,01; A14,01; B9,03; B15,03; B9,04; C12,01; C12,03; D4,05 [uncertain]; E11,02; F12,02; F9,04; F13,05; F17,05; G2,04
Pth <i>MNW</i> , “who, whom, whose” (MP <i>MNW</i>)	a5,04	a17,04 [uncertain]; a11,06 (-n); c4,03; c11,05; d9,02; d3,04; e10,02; e4,03; e12,03; e3,06; f2,01; f3,06; g7,02 [uncertain]
<i>MROHY</i> , Pth <i>hwtwy</i> , “lord”	D2,05; H5,04; Pth f1 [<i>h</i>](<i>w</i>) <i>tw</i> (<i>h</i>)[<i>y</i>]	B5,02; B10,06; D13,06; D14,06; F5,02; F5,05; H6,04-H2,05 (10x); Pth b5,04; d4,03; e4,04; g6-16,06 (5x)
Pth <i>msyšt</i> , “greatest” (MP <i>mhsty</i>)	a12,06	a6,05; e12,03; e4,04; g15,03
<i>my(š')n</i> , Pth [<i>my</i>](<i>š</i>) <i>n</i> , “of Mēšān”	D2,04-D3,04; Pth c5,06 [uncertain]	D4,02; D6,02; D14,02; D3-4,03; D1,06; Pth c11,04; c15,04; c4,05
Pth <i>mz(dy)z</i> <i>n</i> , “Mazdean”	a5,01	ANRm 1; ŠH 1,3; ŠKZ 1,19; ŠNRb 1 & 2; ŠVŠ 4,6
N		
Pth <i>NPŠE</i> , “own” (MP <i>NPŠE</i>)	a5,03; c9,04 [uncertain]	a7,02; a11,03; b12,01; e3,03; f3,02; g4,01
<i>n(rs)[hy]</i> , “Narseh” (Pth <i>nryshw</i>)	E17,04 [uncertain]	A13,01 [uncertain]; B13,01; C10,03; E2,04; E9,04; E11,04 [uncertain]; H14,04
Pth <i>ntšrwkn</i> , “Nodšīrogān”	c5,03	ŠKZ 2, 44
<i>nwky</i> , “new”	E17,03	H7,05
<i>nzdy</i> , “near”	C2,04	
P		
<i>p[ʾdy]sy</i> , “counsel” (Pth <i>pdys</i>)	H5,05-H6,05	A7,05 [uncertain]; B12-13,05
<i>pʾtk(wsy)</i> , “district” (Pth <i>ptykws</i>)	H5,05	B13,04; Pa f14,03
<i>plkʾs</i> , “degree”	G14,04	

	New blocks	Old blocks and other evidence
(<i>pndy</i>), “advice” (Pth <i>pnd</i>)	H5,05	B12,05; B15,05
<i>p[r]’c</i> , “forth, forwards” (Pth <i>prhš</i>)	D2,06-D3,06	D1,02; D6,03; D14,05; E9,01; E13,01; E4,02; G2,01
Pth <i>prgw(z)-(’n)[h]tyE-nryshw</i> ⁸⁷ , “Pērōz-Anāhīd-Narseh”	a12,01	
Pth [<i>p]rg[wz]-š(h)y[pwr]</i> , “Pērōz-Šābuhr”	c9,02 [uncertain]	ŠKZ 4, 27
Pth <i>prmy(tn)</i> , “to govern” (MP <i>plm’tny</i>)	a11,04-a12,04	e10,06 [uncertain]; f7,01; f3,04; g15,02
Pth <i>prtr</i> , “better, best” (MP <i>p’lswmy</i>)	a13,06	a6,05; e12,03; f7,03; f6,05; g16,03
Pth <i>prtw</i> , “Parthians” (MP <i>plswby</i>)	a5,04	a11,06; c4,03; f6,04; f2,06 [uncertain]
Pth <i>pty</i> v. <i>PWN</i>		
Pth <i>p(tyrk)</i> , “towards” (MP <i>pt[y]lky</i>)	c9,03	MP C6-7,06
Pth <i>ptysh(w)</i> , “answer”	a12,04	f12,03; f7,04; g16,02; g6,03
<i>PWN</i> , Pth <i>pty</i> , “at, by, in, on, with etc.”	D2,05 [uncertain]; G14,03; H5,05; Pth c9,04	<i>passim.</i>
R		
Pth <i>RBA</i> , v. <i>LBA</i>		
S		
<i>SGD(E)</i> , “homage”	G14,03	ŠPs I, 4
<i>sk’n</i> , “of Sakas” (Pth <i>skn</i>)	D2,02-D3,02 <i>s[k’n]</i> ; E16,02 <i>[s](k)’n</i>	A7,03; A17,04; C3,01 [uncertain]; C13,03; C10,6 [uncertain]; D3,02; D7,03; D10,03; D8,06; E4,01; E13,04
Pth <i>spsy[rdr]</i> v. (<i>špšy</i>) <i>l(’)[l]y</i>		
Pth (<i>swry</i>) <i>n</i> , “Sūrēn” (MP <i>swlyn</i>)	a5,06	c4,02; MP C14,04
<i>swty</i> , “advantage, benefit” (Pth <i>swty</i>)	G14,04	Pth g6,02 ⁸⁸ ; MP KKZ 2; KNRm 6

⁸⁷ See above n. 29.

⁸⁸ Only in Rawlinson drawings (Humbach-Skjærvo 1978: Pl. 59.2, Fig. 107).

	New blocks	Old blocks and other evidence
Š		
Pth (<i>š</i>) <i>hypwhr</i> , “Šābuhr” (MP <i>šhpwhry</i>)	e6,05	Šābuhr I, King of Kings: a6,01; f7,01
Š(<i>M</i>), “name” (Pth <i>ŠME</i>)	E17,05	B9,04
<i>l</i> (<i>šp</i>) <i>l</i>	E17,01	
(<i>špšy</i>) <i>l</i> (<i>ʔ</i>)[<i>l</i>] <i>y</i> , “swordsmen”, Pth <i>spsy[rdr]</i>	E16,05-17,05; Pth e6,02	ŠKZ 33; Pth ŠKZ 27
[<i>Š</i>] <i>P</i> (<i>Y</i>)[<i>R</i>], “better”	F18,02 [uncertain]	F12,04; F15,05
<i>štldʿl</i> ⁸⁹ , Pth (<i>h</i>) <i>štrdr</i> (<i>n</i>), “Landholders”	G14,06; H5,01 [uncertain]; Pth a13,02	Pth g16,01; g2,03; MP ŠH 5; ŠTBq 5
Pth <i>ŠΘRA</i> , “side” (MP <i>ŠTRA</i>)	c5,04	b15,04
<i>š</i> (<i>t</i>)[<i>rdʿly</i>], “Landholder” (Pth <i>hštrdry</i>)	E8,05 [uncertain]	G12,03; H3,05
<i>štrdstn</i> , “city”	E6,02	ŠKZ 8-10, 16-20; KSM 18; KKZ 11, 12; KNRm 37, 38
<i>štry</i> , “land, realm” (Pth <i>hštr</i>)	E16,03⁹⁰; G1a,05⁹¹	<i>GDE W štry</i> : B12-13,03; H8,02; <i>ʿyrʿn-štry</i> : B9,01; B11,03; B10-11,04; B15-16,04; B7,05; B9,05; D3,01; D4,01; F2,02; F15,03; F13,04; F9,05; H7,01
<i>štry-hwtʿdyhy</i> , “rule, government” (Pth <i>hštr-hwtwypy</i>)	E6,03	A17,05; B8,01 [uncertain]; B5-6,05; H11,01 [uncertain]; H17,01 [uncertain]
<i>l</i> (<i>š</i>) <i>t</i> (<i>y</i>) ⁹²	F18,03	
Pth [<i>šw</i>] <i>gwn</i> , “as, how”	c5,05	c1,06; d14,06; f2,05
T		
Pth <i>thmšh</i> [<i>ypw</i>] <i>hr</i> , “Tahmšabuhr” (MP <i>t[h]mš[h]pwhry</i>)	c11,02-c12,02	MP C7,05
Pth <i>twhm</i> , “seed, family” (MP <i>twmy</i>)	a12,03	e12,04; f8,06

⁸⁹ Cf. *štrdʿly*, G12,03; H3,05.

⁹⁰ Within the formula **GDE W štry**

⁹¹ Possibly the second half of *ʿyrʿn-štry*; cfr. Pth f13,05

⁹² The more probable reading is [*hʿmw*](*š*)*t*(*y*) “gathered”, see above n.20 and 70.

	New blocks	Old blocks and other evidence
Pth <i>twh[m]ykstr</i> , “noblest” (MP <i>twmyktwmy</i>)	a13,06 -14,06	MP B11-12,02
W		
W, Pth W, “and”	D2,04; E8,03; E16,03; E6,04; E16,04; E16,05; E17,05; E17,06 (-m); G14,02; G14,06; H5,02; H5,03; H5,04; H5,05; Pth a13,01; a5,02; a13,02; a12,03; a13,03; a5,04; a12,04; a13,04; a5,06; a13,06 (x2); c12,02; c5,03 (x2); c12,03; c9,06; e6,02; e6,02 (-š); e6,03 (-š); e6,03; e6,04	<i>passim</i> .
(w)[...]t(y ?)	E17,03	
<i>whwn`m</i> , Pth <i>whyn`m</i> , “Wahnām”	D2,03; E8,04; E6,06 [uncertain]; Pth c9,04	A7,02; C3,01; C3,02; C14,06; D7,01; D8,03; D3,04; E4,03; E14,04; E2,05; E9,05; Pth a6,02; b10,05; c14,03; e5,02; Pth <i>whwn`m</i> : a14,04; c4,06; d3,03; d11,05; d15,06; e4,01
Pth <i>[wh]yn`m</i> v. <i>whwn`m</i>		
Pth <i>whyšt</i> , “set out” (MP <i>whsty</i> , <i>whyc-</i>)	c5,04	MP D3-4,01; other form B12,03 (-yt); B11-12,04 (-wmy)
<i>w(l)ʿc[...]l(y)</i> , “warāz- ⁹³ ”	H5,03	
<i>l(W)N</i>	E17,04	
Pth <i>wtr(y)</i> , “worse” (MP <i>wtly</i>)	e6,03	MP D7,05
Y		
<i>YA(T)[WN-]</i> , Pth <i>ATYE-</i> , <i>ATYt</i> , “to come”	D1b,02; Pth c9,03 <i>ATYt</i>	B7-8,03; C5,03 (-d); C15,03; (-d); C7,06 (-d); D13,06 (-d); H9,05; Pth b7,01 (-t); c7,01 [uncertain]; c2,05 (-Et); d13-14,03 (-Ent); g16,07 (-Ent)

⁹³ See above n. 23.

	New blocks	Old blocks and other evidence
Pth $[y](^{\prime})z(t)n$ v. $yzd^{\prime}n$		
<i>YDOYT(N)t</i> , “he knew” (Pth <i>YDOE-</i>)	E8,03	C15,01 (-n); C5,02 (-d); F6,04 (-); H14,01 (-)
<i>YHWWN-</i> , “to be, become” (Pth <i>YHWE</i> , <i>YHWt</i>)	E6,04 [uncertain]; H5,02	A8,05 (-t); C7,02 (-d); D3,03; D10,04; D7,05; D14,05; F5-6,05; G12,05; H8,02 (-t)
<i>YMLLWNt</i> , “he said” (Pth <i>YMLLt</i>)	D1b,03 [uncertain] F18,04	A15,04 (-d); G2,03
Pth <i>YN(T)Ntn</i> , “to give” (MP <i>YHBWN-</i>)	a13,04	g16,02; other forms: a11,03 (-Wn); b2,06 (-W); b15,06 [uncertain]; c7,05 (Wn); c2,06 (-t); d15,05 (-t); e5,04 (-t); f8,06 (-t); g4,04 (-t)
<i>Y(T)[YBWN-J</i> , “to sit, to establish, settle”, (Pth <i>YORYBWd</i>)	E6,02-E7,02	C13,02 (-t); E9,01 (-st); E4,06 (-st)
$yzd^{\prime}n$, Pth $[y](^{\prime})z(t)n$, “the gods”	E16,03 [uncertain]; E8,06; G14,04; Pth a5,01	B14,02; B15,03; B8,04; B15,05; E11,03; F15,01; F11,04; F6,05; G12,01; G2,02; G6,05; G6,07; H11,02; Pth a16,06; b15,01; b6,02; b10,03; d13,05; d1,06; e12,02; e5,06; f2,01; f3,01; f12,02; f14,02; f6,03; f12,05; f7,06; f12,06; g2,01; g7,02; g4,04
Z		
Pth <i>ZNE</i> , “this” (MP <i>ZNE</i>)	a13,01; c5,05	c10,01; c11,01; c11,03
Pth <i>J(z)stn</i> ⁹⁴	a5,02	
<i>ZY</i> , “relative pronoun or <i>izāfat</i> ”	E17,04; E6,05, H5,03 ; H5,04	<i>passim.</i>

⁹⁴ Possibly the end of **hwzstn** “Khuzistan”. See Humbach-Skjærvø 1978-1983, 3.2: 104.

Abbreviations

ANRm	Ardašīr Naqš-i Rustam
AR	Inscription of Armazi
AS	Ardawān V Susa
KKZ	Kerdīr Ka‘ba-e Zardušt
KNRm	Kerdīr Naqš-i Rustam
KSM	Kerdīr Sar Mašhad
Nisa	Documents of Nisa
ŠH	Šābuhr I Hājjiābād
ŠKZ	Šābuhr I Ka‘ba-e Zardušt
ŠNRb	Šābuhr I Naqš-i Rajab
Šps I	Šābuhr Sagānšāh Persepolis I
ŠTBq	Šābuhr I Tang-i Borāq
ŠVŠ	Šābuhr I Weh-Šābuhr

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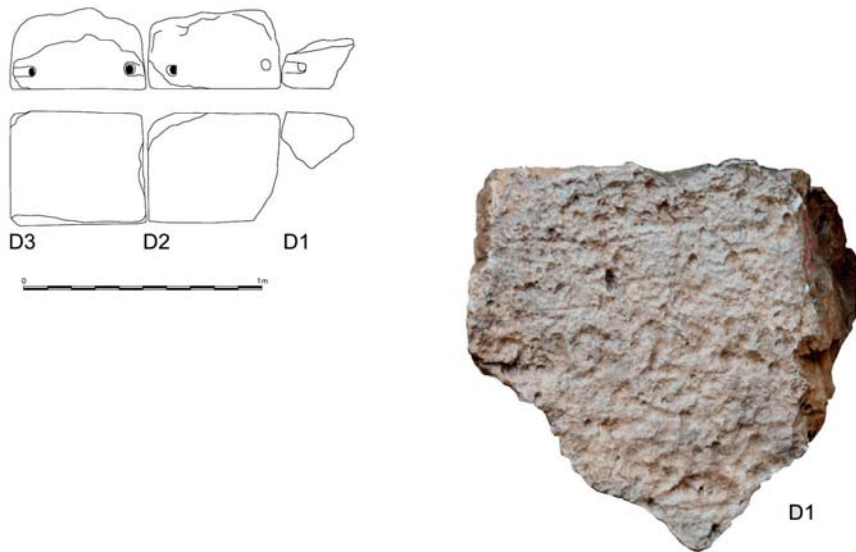
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Pl. 1. Paikuli: Middle Persian block C2.



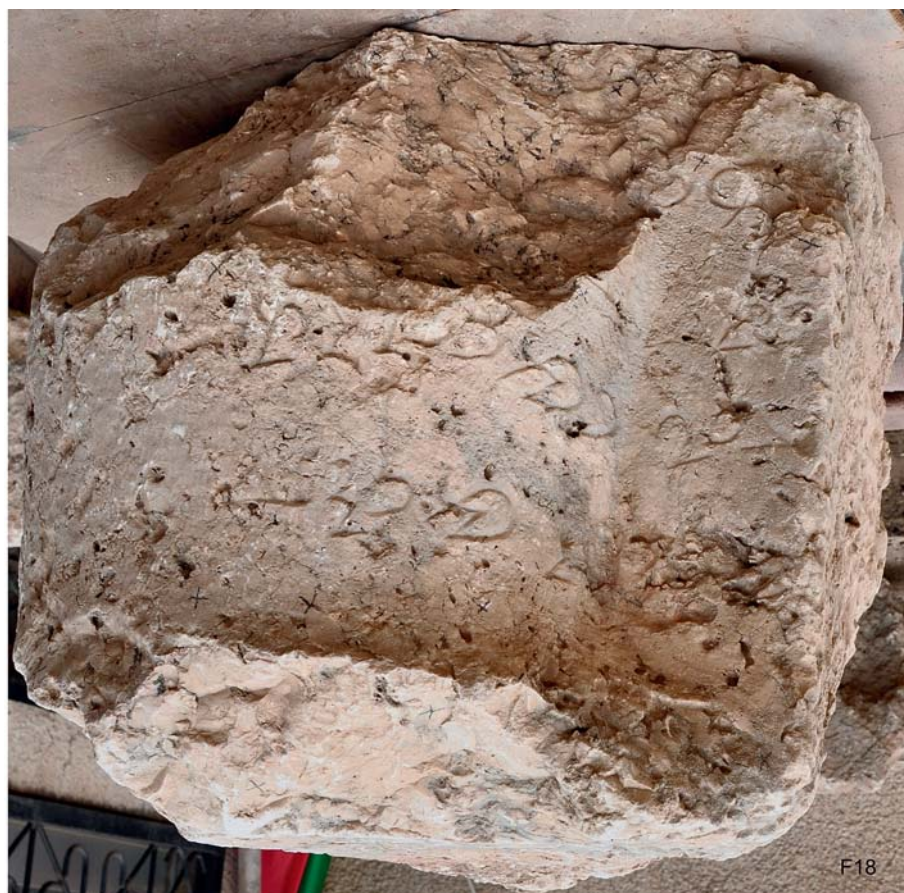
Pl. 2. Paikuli: Tier D (Middle Persian). The newly acquired fragment D1 and the new block D2 and their connection with block D3. The position of the block ties is compatible with the proposed reconstruction study.



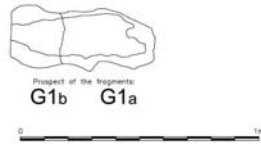
Pl. 3. Paikuli: Middle Persian blocks E6 and E8.



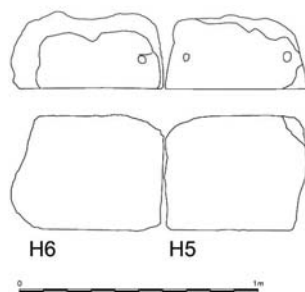
Pl. 4. Paikuli: Middle Persian blocks E16 and E17.



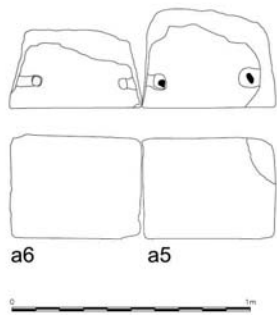
Pl. 5. Paikuli. Middle Persian block F18.



Pl. 6. Paikuli: Tier G (Middle Persian). Top: G1a-b, the surface belonging to the upper plan view is not preserved but the 2 fragments may be connected as evidenced in the prospect view; middle: block G1a; Bottom: block G14.



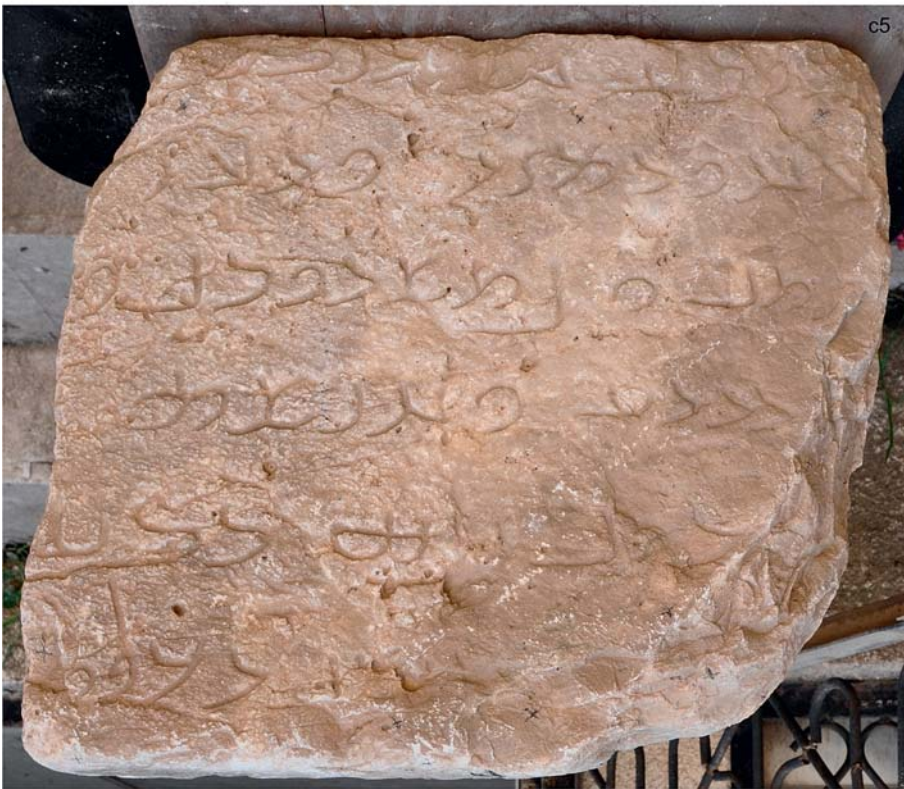
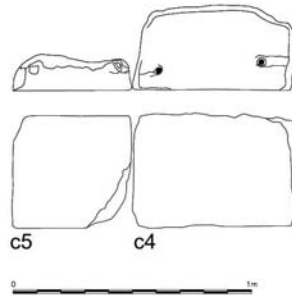
Pl. 7. Paikuli: Tier H (Middle Persian). The newly acquired block H5 and its connection with block H6. The position of the block ties is compatible with the proposed reconstruction study.



Pl. 8. Paikuli: Tier a (Parthian). The newly acquired block a5 and its connection with block a6. The position of the block-tie recesses is compatible with the proposed reconstruction study.



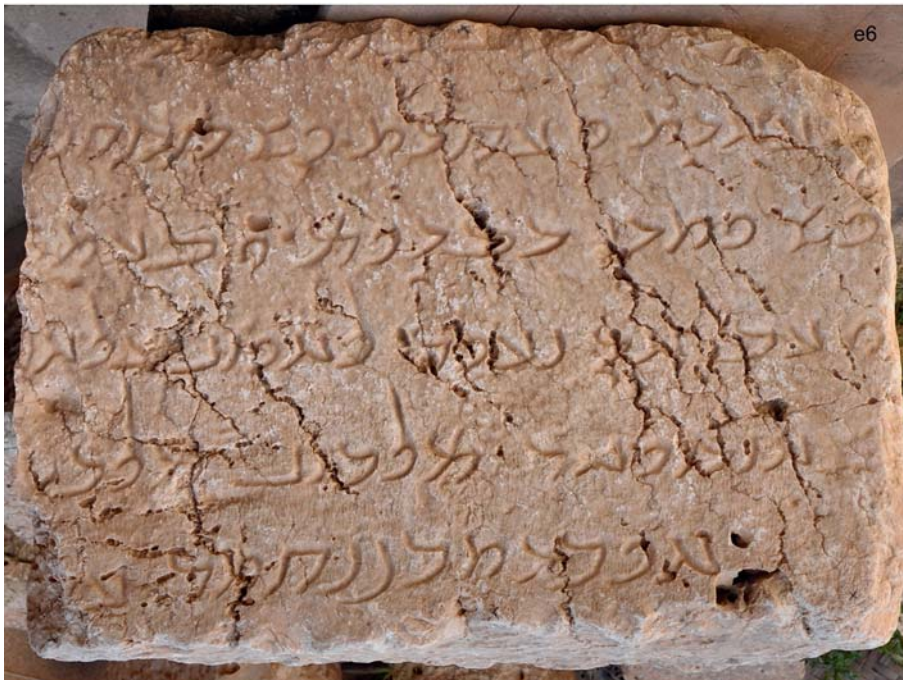
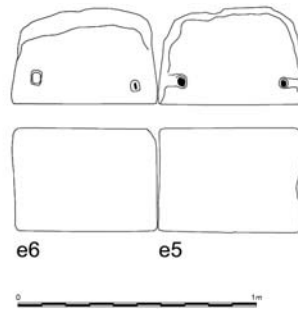
Pl. 9. Paikuli: Tier a (Parthian). The newly acquired blocks a12 and a13 and their connection with block a14. The plan view of block a13 presents a degraded surface in correspondence with the left block-tie recess, but its remaining trace, together with the observed positions of the other block-tie recesses, enables the proposed possible positioning.



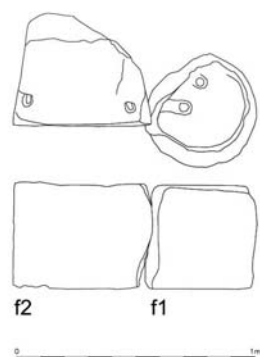
Pl. 10. Paikuli: Tier c (Parthian). The newly acquired block c5 and its connection with block c4. The plan view of block c5 presents a highly deteriorated surface, but the remaining trace of its right-hand block-tie recess, enables its positioning in respect to block c4.



Pl. 11. Paikuli: Tier c (Parthian). The newly acquired blocks c9 and c12 and their connection with blocks c10 and c11. The plan view of block c11 presents a missing surface in correspondence with the right-hand block-tie recess; The plan view of block c10 presents on its left-hand side a trace that could be interpreted as an afterthought and a well delimited recess in connection with block c9's block-tie, therefore the proposed solution is possible.



Pl. 12. Paikuli: Tier e (Parthian). The newly acquired block e6 in connection with block e5. The plan view of block e6 presents a deteriorated surface, but the remaining trace of its right-hand block-tie recess, enables its positioning in respect to block e5.



Pl. 13. Paikuli: Tier f (Parthian). The newly acquired block f1 and a proposal of its position in relation to block f2. For what concerns this corner solution of Tier f, composed by blocks f1 and f2, the information deduced through their documentation indicate that the positioning of the newly acquired block f1 in respect to block f2 is possible.

**THE ENCLOSURE OF TCHINGIZ-TEPE
(ANCIENT TERMEZ, UZBEKISTAN) DURING
THE KUSHAN AND KUSHAN-SASSANIAN PERIODS.
ARCHAEOLOGICAL STRATIGRAPHY AND ¹⁴C DATING
ANALYSES**

BY

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Abstract: The walled enclosure of Tchingiz Tepe is part of the urban complex of Ancient Termez in South Uzbekistan. Situated on a hill to the north-west of the city, the archaeological remains consists of an adobe wall, a monumental building located in the centre of the enclosure, various dwellings attached to the wall, and at least one pottery kiln. The study of the stratigraphic sequence combined with ¹⁴C dating allows the reconstruction of the successive occupations of the enclosure which began with the building of the wall during the Early Kushan or Yuezhi periods (between the mid-second century BC and the mid-first century BC). Later, during the Kushan period (from the mid-first century BC to the mid-third century AD), it was used as a Buddhist place of worship, and then reverted to military use during the Kushan-Sassanian period (mid-third century AD to early fifth century AD).

Key-words: Yuezhi, Kushan, Sassanian, Buddhist monastic centre, Stratigraphic record, Radiocarbon dates.

1. Introduction

The site of Ancient Termez is located in the arid region of southern Uzbekistan, in the Afghan-Tajik Depression, on the banks of the Amu Darya (the ancient Oxus River), close to the mouth of its tributary, the Surkhan Darya (fig. 1). *Alexandria Oxiana* has been suggested as the ancient name of the city, but this attribution remains controversial (Leriche & Pidaev 2007: 181; Rtweladse 2009: 217, 2010). In the seventh century the town was called Ta-mi by the Chinese traveller Zhang Qian, and in the following centuries Arabic authors referred to the city as Tirmiz



Fig. 1. Location of Termez (Rapin, C. 2007: 30, fig. 1).

or Tarmiz, the name which survives today (Leriche 2001: 79-80; Leriche & Pidaev 2007: 181-182). In any case, current research recognises Ancient Termez as one of the great centres of Ancient Bactria after its conquest by Alexander the Great and then during the Greco-Bactrian period (between 246 and c. 150 BC) (Bernard 1994: 103; Pugachenkova et. al. 1994: 331-336; Rtweladse 2009: 217). The city has been considered by some scholars as the capital of the Kushan kingdom in northern Bactria or Tokharestan during the Kushan period (around 50 BC-250 AD) (Leriche 2001: 75, 2010: 170; Leriche & Pidaev 2007: 210) and it occupied a large urban site during the Kushan-Sassanian (third to sixth centuries AD) and Islamic

periods (seventh/eighth to thirteenth centuries AD) (Litvinsky 1996: 149; Bosworth & Bolshakoz 1998; Negmatov 1998). The significance of Termez as a human settlement and a religious and trade centre was due to its exceptional location in a strategically important section of the river, at the intersection of many intercontinental routes along the Silk Road. Ancient Termez was destroyed in 1220-21 by the Mongols, but after this invasion the town was rebuilt to the north-east towards the Surkhan Darya valley; the land occupied by the old city has remained uninhabited (Pidaev 2001; Leriche 2001; Leriche & Pidaev 2007, 2008).

The archaeological site of Ancient Termez is composed of a large fortified urban complex that includes other walled enclosures inside it (fig. 2). Archaeological excavations conducted at the site have demonstrated the existence of a Citadel overlooking the Amu Darya dating to the Greco-Bactrian period. This fortress was enlarged to 10ha under Kushan rule and remained fortified until the seventeenth century (Leriche & Pidaev 2007: 187). Most of the area of Ancient Termez seems to have been occupied at the time. A second fortress called Tchingiz Tepe, less than 1km away to the north-west, together with the main city and the suburbs located in the eastern area, is believed to have been settled during the Kushan period. It is also assumed that Termez has been one of the most important sites of Buddhist worship in ancient Bactria, and a place which developed a symbiotic religious art. This is evidenced by the cultic complex, the stupa and the various centres of Buddhist worship such as caves corresponding to monastic cells made of stone, clay and gypsum, located between the Citadel and the Tchingiz Tepe enclosures (Leriche & Pidaev 2007: 188-200). Apart from these discoveries, the significant role of Buddhism at Termez is demonstrated by the presence of three Buddhist sites—Kara Tepe to the north, Fayaz Tepe to the north-east and Zurmala to the south-east—situated around the city, outside the fortified area but very close to the ancient town (Puri 1994; Dani & Litvinsky 1996: 117-118; Litvinsky & Vorobyova-Desyatovskaya 1996: 439; Stavisky 2001; Mkrtyschew 2007, 2010). Excavations at Termez have provided little evidence from the fifth to the seventh centuries except for the remains of the 6km-long mediaeval wall encircling an area of 70ha which is itself divided into two walled areas. The lower town or *shahristan* was a rectangular fortified city (with a surface area of approximately 10ha) while the large suburb or *rabat* occupied the eastern area of the town (Litvinsky 1996: 149; Leriche & Pidaev 2007: 182ff).

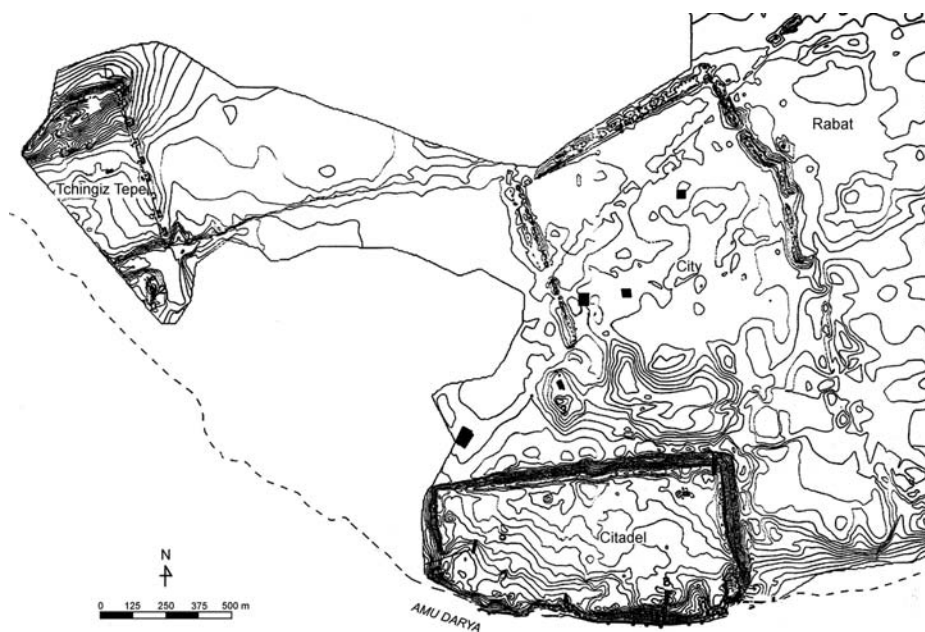


Fig. 2. Termez. General map of the site with the location of the Citadel, Tchingiz Tepe, and the medieval city (the cartographic base used comes from P. Leriche & Sh. Pidaev 2007: 183, fig. 2, 203, fig. 20).

All the historical data currently available on Termez come from written sources of various origins and from the archaeological excavations conducted at the site. Archaeological work in Ancient Termez did not begin until the early twentieth century. A first scientific survey of the site was conducted in 1926-28 by B.P. Denike of the Museum of Eastern Cultures of Moscow, and the first archaeological excavations started in 1936 under the direction of M.E. Masson of the University of Tashkent (Leriche 2001: 77-79; Pugachenkova 2001). Since 1979 excavations in Ancient Termez have been led by S. Pidaev, and in the 1990s several collaborative programs with foreign archaeological teams were undertaken. The current *Mission Archéologique Franco-Ouzbèque de Bactriane Septentrionale (MAFOuz-Bactriane)* directed by P. Leriche and S. Pidaev began work in 1993 in the Citadel and Tchingiz Tepe enclosures and in the lower town of Termez. The mission has focused on the study of the settlement patterns and building characteristics rather than on the analysis of the stratigraphic

sequence preserved or of the associated artefacts and ecofacts (Leriche 2001; Gelin & Tonnel 2001; Leriche & Pidaev 2007). Since 1998, the *Japan-Uzbek Joint Research Team*, headed by K. Kato and S. Pidaev, has conducted archaeological excavations on the north and central hills of the Buddhist monastery of Kara Tepe (Pidaev & Kato 2010), and since 2006 the Uzbek-Spanish mission, the *International Pluridisciplinary Archaeological Expedition to Bactria (IPAEB)* led by J.M. Gurt and S. Pidaev, has been working in Kara Tepe and Tchingiz Tepe. This project aims to shed new light on the human settlement as well as on the production and commercial diffusion of ancient pottery recovered at Termez from the period spanning the Greco-Bactrian and Islamic periods, in order to create the first typological and chronological sequence of the pottery record (Gurt *et al.* 2007, 2008, 2009; Gurt & Pidaev 2010, 2011).

Despite the large-scale archaeological activity underway at the site during recent years, most of the work offers only a partial view of the settlement evolution of Ancient Termez. Given the complexity and the continued occupation of the site many questions remain unanswered; in particular, questions such as the date of foundation, the function and the evolution of the occupation of some of the fortified complexes within the old town. Tchingiz Tepe, for example, has been attributed a Kushan origin, but the archaeological evidence presented so far to support this hypothesis is based solely on the establishment of parallel chronologies derived from the architectural features and the characteristics of the building materials used rather than on an analysis of the stratigraphic sequences (Leriche & Pidaev 2007: 200-209). Prior to our study, very little was known about the development and occupation of Tchingiz Tepe. In fact, several questions concerning the Tchingiz Tepe site remained unanswered: What is the date of the first signs of occupation of the hill? When was the defensive wall built? What was the function of this fortified site? Can we speak of a continued occupation over a long, stable period, or were there periods of turbulence associated with processes of collapse and urban rebuilding? When, and under what conditions, was Tchingiz Tepe finally abandoned?

The main goal of the research conducted by the Uzbek-Spanish *IPAEB* team was to answer all these questions. To this end, a complete research programme combining archaeological data obtained through stratigraphic excavation and absolute dating using ^{14}C analyses has been underway at Tchingiz Tepe since 2007. Special attention has been paid to the study of

artefacts—particularly the pottery—associated with the stratigraphic-temporal sequence, in order to improve our understanding of both local and imported pottery products. The present article reports the results of all this research and sheds new light on the formation and function of enclosures of this kind which were very common in the cities of ancient Bactria (Litvinsky 1994: 296, 301ff; Pugachenkova *et al.* 1994: 331).

2. The archaeological excavations at Tchingiz Tepe

The Tchingiz Tepe fortress is located on a hill defined as a low-elevation *inselberg* lying north-west/south-east and reaching an altitude of 325m above sea level at its highest point (the northern area). The slope is more abrupt on the northern side of the hill. Three segments can be observed along the central N-S axis: an upper northern segment, which is the steepest (21.44%), where extensive rock outcroppings are frequent; a middle segment, which is less steep (6.34%); and finally, a levelled third southern segment (2.3%), which ends in an escarpment roughly 8-10 metres high (Sánchez del Corral 2009; Sánchez del Corral & Thum 2012). The original topographical surface of Tchingiz Tepe has been disturbed by modern military activity. The contribution of ancient archaeological excavations to the original topographical surface perturbation should also be borne in mind, because the first interventions at the site aimed to remove the thick deposit covering the walls.

From the visible remains of the wall today, we can argue that the fortified enclosure was probably trapezoidal in shape and measured approximately 300m in length, but human intervention and fluvial erosion have caused the disappearance of the entire western curtain section (fig. 3). The northern and eastern walls are in a better state of preservation, whilst the south section of the enclosure has been gradually destroyed by erosion as it is located at the bottom of the slope, where the eroding effect of surface water and slope dynamics has been more significant. The defence wall was built with or out of square sun-dried adobe bricks made with a clay-sandy material, and was pierced by countless real or blind arrow-shaped loopholes which are usually considered to be characteristic of the Kushan period. Square towers were built along this structure at intervals of 20-25m, and a ditch, 12m wide and 4m deep, was dug 12m from the external side of the curtain wall (Pl. 1). A corridor ran along the entire northern section and part of the eastern wall but it has only been verified

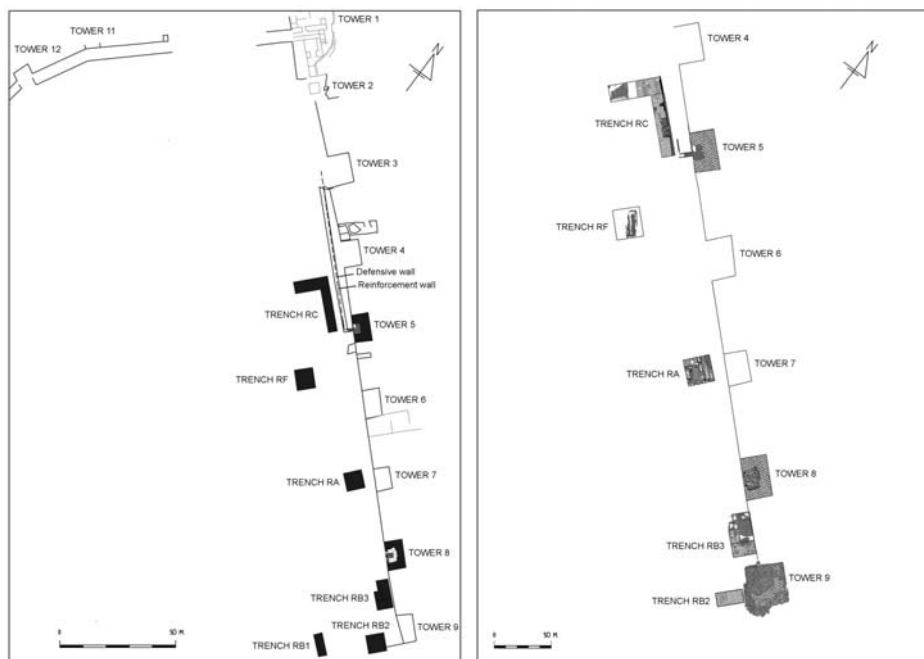


Fig. 3. Plan of Tchingiz Tepe with the location of the structures recovered in the excavated sample trenches (cartographic base: E. Devaux, situation and topography of the excavated areas: J. Miquel).

from the north-eastern angle of the enclosure to Tower 4. At this point a *pakhsa* wall was constructed perpendicular to the fortification including a *proteichisma* of mud brick (Pl. 2) built in Greek style but also used in defensive architecture during the Kushan period (Leriche & Pidaev 2007: 206-208). The *pakhsa* wall was built before the adobe wall, as the bricks of the latter wall follow its contour.

Several structures were documented inside the fortified enclosure of Tchingiz Tepe before the *IPAEB* began its archaeological mission. Apart from the work carried out on the eastern curtain wall, a massive cultic platform was recovered lying directly on the bedrock near the north-east angle of the fortification. It is similar to a larger platform recovered in Surkh Kotal linked to the dynastic cult of Kanishka (Leriche & Pidaev 2007: 202). Finally, a large building constructed with wide walls made of mud bricks, comprising several rooms and surrounded by a corridor, was excavated in the centre of Tchingiz Tepe (Pl. 3). So far, the function of this

building remains unknown although Leriche & Pidaev (2007: 208-209) have suggested that it may have been a religious building or mausoleum dating to the Kushan period.

To better understand the kind of settlements developed in Tchingiz Tepe and to establish a date for its foundation and final abandonment, the main research carried out by the *IPAEB* team during recent years has focused on the stratigraphic excavation of a number of trenches and on the compilation of a complete data registry of the preserved archaeological remains (fig. 3). Three archaeological sample trenches (RB1, RB2 and RB3) have been excavated on the southern side of the enclosure, where the wall was no longer visible on the surface, whilst three archaeological sample trenches (RA, RF and RC) were opened on the eastern section of the wall (Gurt *et al.* 2008, 2009; Gurt & Pidaev 2010, 2011). To examine the temporal sequence of the stratigraphy of the site, a large programme of ^{14}C analyses has been performed on charcoal and bone fragments recovered in different strata from the excavated trenches (Mestres & Rauret 2009, 2010a, 2010b). These results have allowed the establishment of the sequence of occupation of Tchingiz Tepe and have made it possible to correlate, with absolute dates, the phases of progress or decline of the urban settlement with the historical processes known in the area (Table 1). An exhaustive synthesis of these results will be presented in the following section of this paper. Although the excavation processes individualized the archaeological record of each trench in Stratigraphic Units (SU) for ease of comprehension, the stratigraphy will be presented grouping the SU in occupation sequences, from the earliest to the most recent. Finally, it should be stressed that all the archaeological levels have provided pottery shards among other material culture, but the main goal of the present paper is not to summarise the ceramic forms associated with each phase of occupation of the Tchingiz Tepe; in fact all the archaeological and archaeometrical information about these artefacts will be presented in future studies.

3. ^{14}C dating

Little is known about the ceramic works of northern Bactria during the period spanning the end of the Seleucid Empire and the end of the Sassanian Empire. Generally speaking, the study of ceramics from northern Bactria is at a highly preliminary stage. The chronological sequences are not well defined and the evolution of ceramic types over this long time period

is not fully known. Ceramic finds are frequently analysed separately from the stratigraphic sequence from which they have been recovered, and furthermore the use of absolute dating techniques remains a rarity. In conclusion, the attempts to produce a systematic typological classification of the ceramics are limited to a few reference cases: Ai Khanoum in Afghanistan (Gardin 1973), Termez in Uzbekistan (Pidaev 1991a, 1991b), and most recently Merv in Turkmenistan (Puschnigg 2006) and Kurganzol in Uzbekistan (Sverchkov 2008).

For this reason, we decided to apply a thorough programme of radiocarbon dating in the study of the stratigraphic sequence of Tchingiz Tepe. The absolute datings of the primary and secondary deposits hereby presented are the basis of the construction of the stratigraphic sequence of the site and will be of value for a future sequencing of the ceramic productions and types.

We present a total of 27 datings obtained from radiometric measurements carried out at the Radiocarbon Dating Laboratory (UBAR) of the University of Barcelona and mass spectrometry measurements (MS) performed at the National Centre of Accelerators (CNA) in Seville (Table 1). For the calibration of radiocarbon dates the software program Calib 6.1.0 was used together with the IntCal09 database (Reimer *et al.* 2009; Stuiver & Reimer 1993).

The absolute datings in the text are based on computations carried out using:

- Experimental calibrated dates corresponding to the intersection of the radiocarbon date with the calibration curve. These correspond to the maximum modes of the probability distribution of the calibrated date
- Calibrated date intervals centred on the modes of probability distribution for the true calibrated date corresponding to a total probability of 68.3% and the probability associated with each interval respectively (1σ). In this set of intervals the probability that the true calibrated date will be found is 68.3%.
- Calibrated date intervals centred on the modes of probability distribution of the true calibrated date corresponding to a total probability of 95.4% and the probability associated with each interval respectively (2σ). In this set of intervals the probability that the true calibrated date will be found is 95.4%.

The archaeological assessment of the ^{14}C datings takes into account different variables: the type of material analysed, the context in which it was found as well as the position of the SU within the stratigraphic sequence

as a whole, and our interpretation of the formation processes of the strata. We also consider whether the analysed carbons might correspond to constructions—especially when the finding of the dated material corresponded to a secondary SU—or whether the analysis was carried out on short-life plant species in primary contexts and was therefore chronologically close to the archaeological event being assessed. In this regard, the data from earlier anthracological analyses have been fundamental. In one case the dating come from bone material, which is generally considered to be chronologically close to the date of the stratum formation; but even in this cases we take into account whether it belongs to primary or secondary context as well as its position within the sequence. All ^{14}C dated sequences but one were obtained from a variety of samples, thus facilitating their interpretation and suggesting a dating that may be very close to reality.

4. The stratigraphic record in the south-eastern section of the curtain wall

Close to the escarpment, in the southern part of the enclosure of Tchinziz Tepe, three sample trenches (RB1, RB2 and RB3) were excavated in order to identify the location of the missing curtain wall and to determine the stratigraphic relationship with the western and northern face of Tower 9 (fig. 3), in the south-eastern corner of the enclosure (Achon *et al.* 2008: 115-130; Ariño 2011). Special attention was also paid to the analysis of the preserved stratigraphic sequence to establish the settlement evolution of the south-eastern area. Although the wall and the archaeological strata have been intensely damaged by erosive processes and by recent human activity (principally military), the excavated area (40m² in RB1, 64m² in RB2 and 56m² in RB3) has provided important information about the foundation of the wall, the building techniques used for its construction and the later processes affecting the enclosure (fig. 4).

4.1. Levels of curtain wall foundation

The excavation of the remains of the wall in RB1, RB2 and RB3 sectors have provided a very similar stratigraphic record. In all cases, the bedrock was clearly levelled by human action, because it appeared unaltered and perfectly horizontal (Pl. 4). In RB2, the sandstone bedrock was not only levelled but also carved, creating a step about 25cm high. Taking into

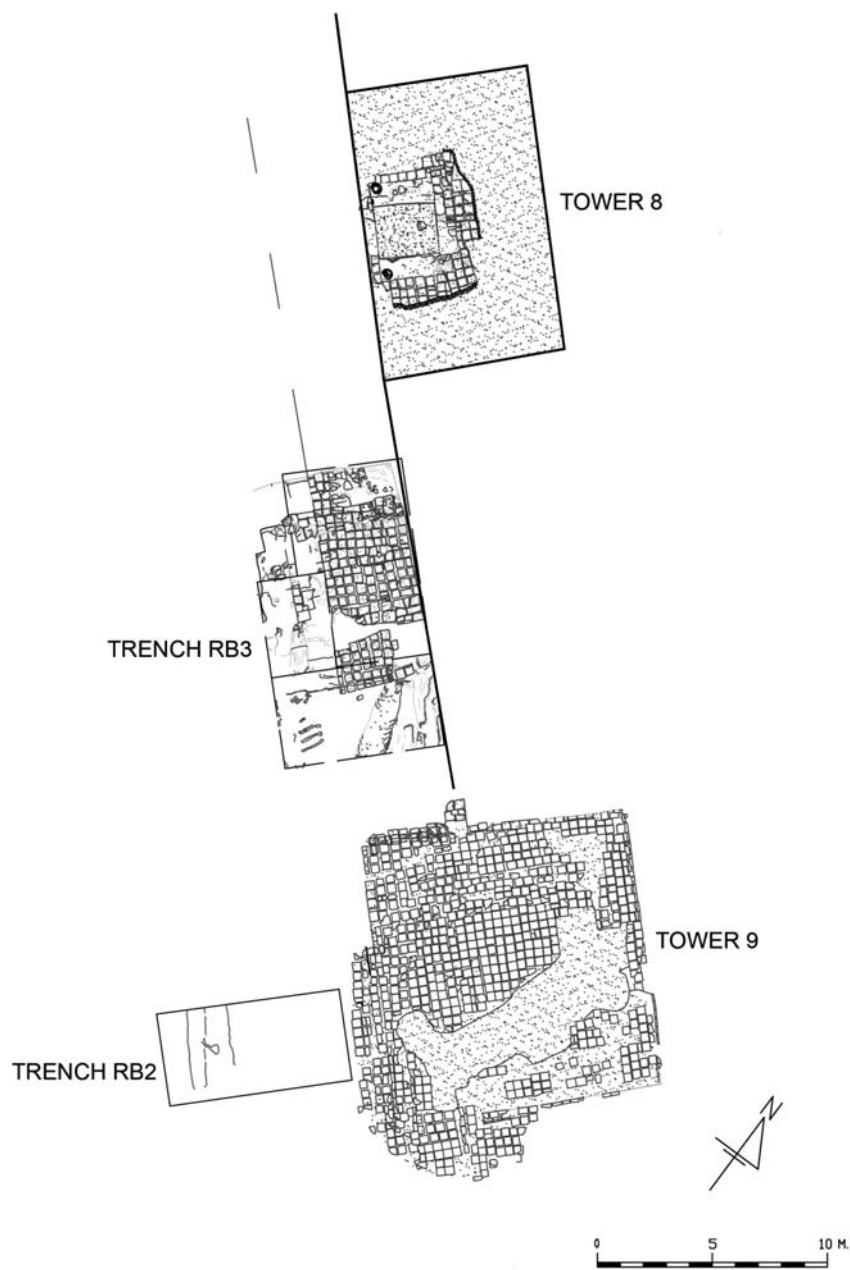


Fig. 4. Tchingiz Tepe. Plan of the south-eastern area of the enclosure with the location of sample trenches RB2 and RB3 excavated in sector RB and Tower 8 of the defensive wall (cartographic base: E. Devaux, situation and topography of the excavated areas: J. Miquel).

account its orientation—parallel to the tower—and location—on the edge of the escarpment—this step can be probably considered as the earliest work performed in the construction of the southern curtain wall of Tchigiz Tepe. Nevertheless, on the sandstone substrate, a set of horizontal layers were arranged as the foundation level for the construction of the curtain wall.

Over the bedrock, the stratigraphic record was the same in the three sectors (SU 5 in RB1, SU 10 in RB2 and SU 6 in RB3) (Pl. 5). The lowest level was mostly clay in composition and the presence of a significant number of pottery shards point to the first human occupation of the hill. ^{14}C data obtained in SU 5 of RB1 sector date the foundation level of the wall between the second century and the beginning of the first century BC, cal BC 205–91 (1 σ , 59.6%). The date obtained by ^{14}C analysis for the RB2 sector is more recent, but within the same chronological frame. SU 10 provides a date between the end of the second century BC and mid-first century BC, cal BC 119–46 (1 σ , 49.0%).

Above the first clay level, a massive formation of grey sand with angular fragments of highly altered grey sandstone with ochre or orange lutite and carbonate nodules was documented in RB1 (SU 6) and RB3 (SU 5) while in RB2 several successive levels of similar composition were found (SU 9, SU 11 and SU 12) (Pl. 4, 5). These strata seem to have been formed with the debris of carving bedrock sandstone and they may have been created in order to level the ground. ^{14}C data obtained in SU 11 from RB2—also considered as a foundation level—places the layer formation in the same period, showing only minor differences between the beginning of second and the mid-first century BC, cal BC 186–48 (1 σ).

Finally, in sample trenches RB1 and RB3, the upper level of the foundation pack was a sandy clay stratum and, although the wall is missing in RB1 it is well attested in RB3, resting directly over this last level.

4.2. *Some evidence of the building and remains of the curtain wall*

The remains of the curtain wall were detected directly over SU 2 of sample trench RB3 (Pl. 5b). A mud brick reinforcement wall measuring c. 1.40m wide was verified, attached to the internal face of the curtain wall and erected over a clay stratum (SU 4) located over SU 2. This reinforcement was also detected running over most of the inner side of the eastern

fortification wall and it was verified in sample trenches RA and RC resting on levels later than those of the earlier wall foundation layer.

Destruction levels of the curtain wall have been recovered in sample trench RB2, deposited following an east-west incline (Pl. 5). A thick clay stratum (SU 4 = SU 5) lay above the grey sand deposits, reaching 115cm in the north-eastern sector of the excavated area, and was composed by mud bricks lying in their fallen position covered by a clay matrix containing a mixture of sand nodules and local sandstone. The morphology of the deposit leaves no doubt about its formation process and the layer should be interpreted as a collapse level, formed by the collapse of a large mud brick structure, probably the southern wall of Tchingiz Tepe. Moreover, Tower 9, at least its western side, was built over this level. It can therefore be inferred that the current preserved structure of the tower corresponds to a post-foundational phase, quite probably matching the phase when the inner face of the wall was reinforced, as seen in sample trenches RA and RC. All these actions bear witness to an alternative process of building, collapse and rebuilding of the wall. But the surface of the stratum SU 4 = SU 5 was also altered by a gully with an asymmetric U-section running along the east-west slope. This was probably created by overland flow and should be related to the processes that caused the collapse of the reinforcement wall. In the ravine bed a firepit was found, formed by a hole carved in the lower sandy stratum and filled with ashes (SU 6). This firepit could be linked to human activity at the time of the formation of the gully, giving a chronological reference that allows us to date the ruin and collapse of the reinforcement wall between the mid-third and the mid-fourth century AD, cal AD 246-336 (1 σ).

5. The stratigraphic record in the western section of the eastern curtain wall

Two sample trenches (RA and RC) were dug in the inner area of the eastern enclosure wall of the fortification of Tchingiz Tepe (fig. 3), with the same aim as the work carried out at the south-eastern end of the enclosure. However, greater attention was paid to the stratigraphic analysis, since previous interventions had shown it to be deeper than in the southern part.

Sample trench RC is in direct contact with the curtain wall and is close to Tower 4. It has an excavated surface area of 156m², in which a stratigraphic

record of circa 2.50m from the sandstone substrate to the top was detected (Ariño 2010).

To the south, on the inner side of the enclosure wall and close to Tower 7, the excavated area within sample trench RA covered a surface area of 64m² with a depth of 2m. At this point, the early curtain wall and its inner reinforcement (made of mud bricks), were also identified but not excavated. Nevertheless, the white plaster covering the western façade of the curtain wall made it possible to differentiate this structure from the reinforced wall added to it at a later date. The research carried out in both sample trenches revealed a complex stratigraphy with a long chronological development related to the building and implementation of building structures (Martínez 2011).

5.1. *First phase: First occupation of Tchingiz Tepe and levels of the curtain wall foundation*

As in the south-eastern corner of the Tchingiz Tepe enclosure, the earliest human activity detected in sample trench RC involved the levelling of the bedrock and its disturbed surface. This procedure was also accompanied by the creation of a set of cut marks carved in the rock including a step about 30cm high running parallel to the wall (Pl. 6). As in the case of sample trenches RB1, RB2 and RB3, these activities may have been related to the construction of the site's first mud brick wall. In contrast, the natural substrate documented in sample trench RA, which showed a strong depression in the south-eastern end, did not bear any carving marks, although a post hole (SU 86) dug into it was detected and should be considered as the earliest anthropic evidence in this sector (Pl. 7).

The substrate depression documented in RA appeared to be filled with a heavy sandy stratum (SU 62=64) which must have been the result of the carving activities carried out in nearby areas of the hill (fig. 5, Pl. 7). Even though we have no ¹⁴C date for this sandy level, its characteristics and stratigraphic position make it compatible with SU 6 and SU 5 in sample trenches RB1 and RB3 respectively. In our opinion, this level of decomposed sandstone with very few pottery fragments should be interpreted as a deposit intended to level the ground and prepare it in order to build the curtain wall. However, this explanation cannot be stratigraphically demonstrated because the wall structures recovered have not been excavated.

In RA the upper stratum corresponded to a uniform layer (SU 63=65) composed of clay and sand (fig. 5). In spite of the lack of stratigraphic evidence and ^{14}C dating, this should be considered the level of use associated with the earliest curtain wall. The presence of two bronze coins of the Kushan king Kanishka I establishes a later date of formation for this context, in the mid-second century AD.

In sample trench RC, a level formed by horizontal layers of clay and sand also provides evidence of a first occupation of the site, with the presence of a significant number of shards, various fragments of limestone used for architectural decoration and fragments of adobe brick. These limestone fragments could be related to the demolition of monumental structures, but taking into account its stratigraphic position—at the base of the sequence—it is more likely to be debris caused by building work. The structures probably associated with this earliest phase are two *pakhsa* walls and a level related to them (SU 10), a sandy stratum that presented a thin, cracked crust on its top, probably a floor or frequented surface associated with the walls of *pakhsa*. ^{14}C dating has a broad margin but allows us to establish the date of SU 10 between the first and third centuries AD, cal BC 55–AD 235 (1 σ , 66.1%)—probably closer to the earlier date than to the later one, in view of the stratigraphic sequence and ^{14}C dates of the upper levels (SU 21 and SU 18) (Pl. 8). This phase ends with the collapse of the *pakhsa* walls.

5.2. *Second phase: Building a dwelling space*

In sample trench RA, a large number of structures defining several spaces were built over the stratum SU 63=65 (fig. 5). The main element used for the ordering of the space may have been the structure comprising SUs 40-14-70, which measures 1m in width and runs north-south for the entire length of the trench. This structure has been identified between Towers 5 and 7 of Tchingiz Tepe, lying parallel to that section of the defensive curtain. This thick wall divided the space into two main areas (fig. 6). The first one (in sector RA-1) is a corridor—2.5m wide at its narrowest point—that runs parallel to the fortified wall and was not found in sample trench RC. On the western side of this thick structure, a complex dwelling area was documented but only one room was excavated in its entirety (RA-2). Irregular in shape, RA-2 was 2.5-3m long and was narrower at the northern end (2m wide) than at the southern one (3m wide).

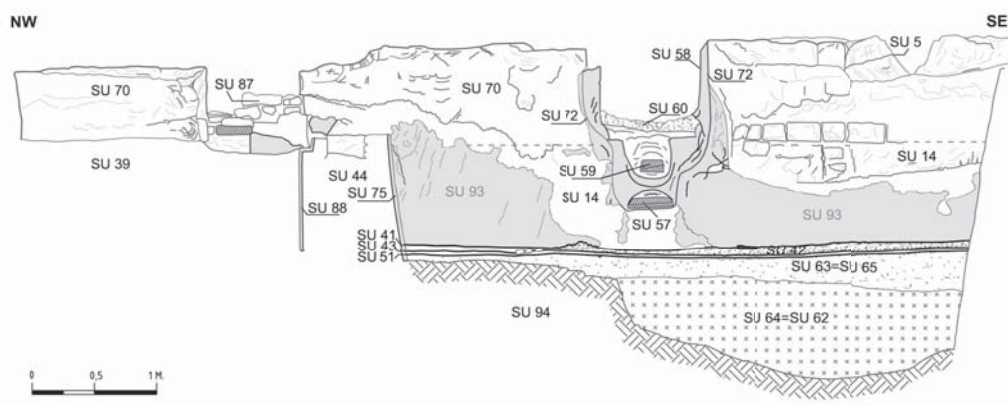


Fig. 5. Tchingiz Tepe. Section N-S of the elevation of the wall SU 40-14-70 and levels of the curtain wall foundation in sample trench RA (Topographic mapping: J. Miquel).

This room was delimited on the northern, southern and western sides by other structures which simultaneously defined two other rooms (RA-3 and RA-4); these have not been fully excavated because they extend beyond the edges of trench RA. All these walls were built using adobe bricks or *pakhsa* and both sides appear coated with successive layers of white lime and red paint plaster coating, demonstrating a progressive maintenance of the dwelling area. On the western side of room RA-2 a door has been recognised between wall SU 33 and pillar SU 73, while the well-finished upper area of SU 56 may indicate the presence of a window. The floor associated with the first use of the room RA-2 is a pavement composed of yellow-brown trodden sand and it abuts the surface of the annexed structures, indicating that the plaster preserved on their façades corresponds to the time of use of the floor SU 51. On the central part and excavated over SU 51, we documented a quadrangular hearth (SU 61) measuring 90×65 cm, defined by a reddish burnt outline and containing fire-reddened earth, some potsherds over the base, and charcoal ash over them (SU 54) (Pl. 9). ¹⁴C analysis of charcoal remains of SU 51 dated the use of this level to a long time period spanning cal BC 5–AD 260 (1σ, 58.4%). However, the presence of two coins of Kanishka I in the lower and earlier level (SU 63=65) has allowed setting the date use more precisely between the mid-second and the mid-third centuries AD. A compact layer (SU 43) composed of a grey sandy clay matrix and lying over SU 51 is considered

to be the last floor used in this phase. Two circular areas may have served as hearths because the ground presented remains of charcoal and ash and the sediment had undergone severe fire-reddening.

5.3. *Third phase: collapsed levels*

The earlier dwelling structures identified in sample trench RC appear covered by two deposits probably formed by slippage (SU 22 and SU 21). Both levels contained shards in small quantities, and in the latter some fragments of limestone have been recovered, one of which has decorative mouldings (Pl. 8). The chronology of the sequence is provided by a ^{14}C date obtained from SU 21 which dates the formation of this level between the second half of the second century and the first half of the third century, cal AD 136-255 (1 σ , 65.5%). There is strong evidence that the wall collapsed after this date because the level located immediately above (SU 28) contained large fragments of mud bricks.

In sample trench RA, the presence of several collapse levels also suggests that this was a period of turbulence. Inside the corridor and adjacent to the curtain wall (space RA-1), we found two clayey layers (SU 50 and SU 48) containing abundant fragments of adobe bricks and raw clay balls of 10cm in diameter (fig. 6; Pl. 10 and 11). Balls of this kind have also been recovered in other parts of the inner area of the eastern curtain wall; they would have been missiles used in a frontal attack launched from the eastern side of the fortress of Tchingiz Tepe. The fallen adobe bricks may indicate the partial failure of the rampart wall. Other evidence of demolition of parts of the defensive structure is provided by layer SU 36, which covers the previous ones, and was made up of small amounts of pottery but abundant charcoal fragments and ash. Although this layer was first interpreted as a level of use of this passage wall, the absolute dating provided by ^{14}C analysis, cal AD 83-142 (1 σ , 44.3%), has revealed that the charred remains must belong to the destroyed curtain wall and/or the collapse of the earliest dwelling structures. This hypothesis is also supported by the results obtained from the anthracological analysis of these charcoal fragments; most of them correspond to tree species whose wood could have been used in the construction of the aforementioned structures, which would justify a ^{14}C date somewhat earlier than the hearth recovered at the earliest floor of room RA-2.

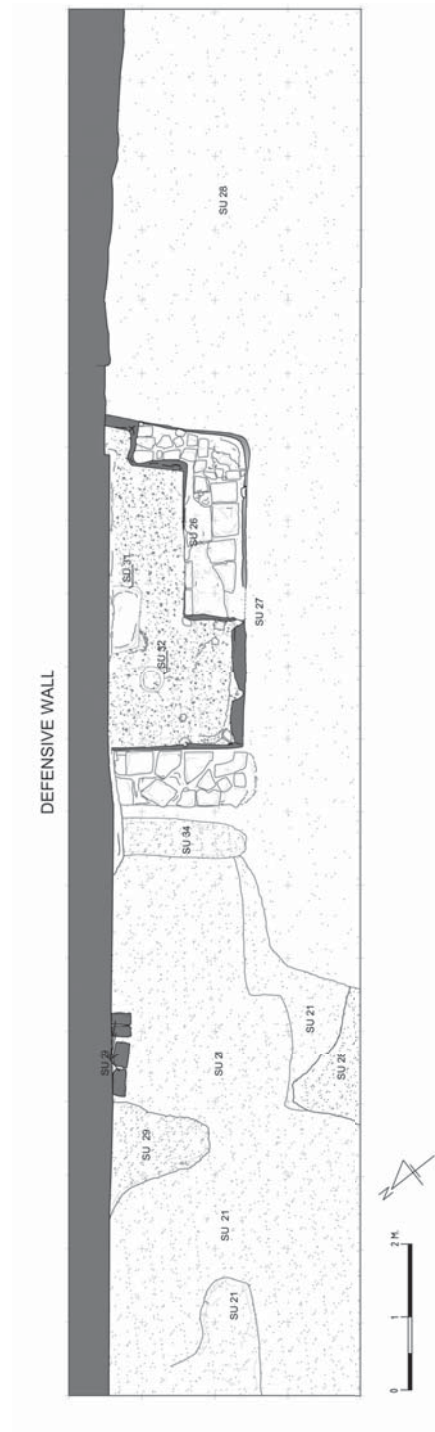


Fig. 7. Tchingiz Tepe, General plan of sector RC with the monastic cell (4th phase) and the reinforcement structures of the defensive wall (5th phase) (Topographic mapping: J. Miquel).

with a sand infill. A long bench was attached to the inner wall of the house. There were two holes in the floor of the house dating to the inhabited stage. The first of them, with a circular plan, was probably a firepit, to judge from the combustion signs visible in the red colour of the clay floor and from its infill, basically composed of ash and small pieces of charcoal in sparse quantities. The other hole, rectangular in shape, was probably a storage space and contained an infill composed of a level of sand almost devoid of material except some sparse shards. The dwelling structure was covered by stratum debris (SU 25), containing abundant pottery, most of which probably came from the levels of use of the previous house. This hypothesis is based on the recovery of an amphora whose base was repaired with lime in SU 25 whereas over the floor, SU 27, the footprint of the same repaired amphora was found. In addition, the stratum provided significant material in the form of a limestone container lid, a fragment of a lotus flower made in terracotta and a coin of Kanishka I (127-151 AD) which provided a *post quem* dating for this house that matches the ^{14}C date obtained from the earlier layer SU 21, between the mid-second and mid-third centuries AD.

A new phase of habitation is also observed in the sample trench RA. In room RA-2, the layer SU 42 arranged over the floor SU 43 was dated to the third century AD, cal AD 215-420 (1σ , 67.9%). Later, SU 42 served as a level of preparation for a new floor (SU 41) composed of sand in a clay matrix. On this surface a bronze coin was found, in a poor state of preservation, but appearing to be an imitation of gold coins representing the Kushan king Huvishka (155-187 AD) emerging from clouds. The topographical changes in this room also affected some of the delimitation structures. The thick wall dividing the two spaces of sample trench RA was lengthened, adding SU 70 to deal with the elevation of the new floor built in room RA-2. This structure was built at the same time as a niche measuring 90cm long and 80cm wide, in the west side, probably intended to contain a sculpture or to be used as a fire altar (Litvinsky 1994: 297) (fig. 5 and 6; Pl. 13). In the northern part of this wall, a window was opened linking the adjacent room (space RA-4) to the wall corridor (fig. 5 and 6; Pl. 13). This phase ends with a destruction level (SU 37) composed of a matrix of decomposing adobe bricks mixed with the remains of wall plaster, which is believed to correspond to a small alteration of this room. ^{14}C dating of SU 37, cal AD 120-265 (1σ , 47.7%) is between the early second century and the mid-third century AD but the stratigraphic sequence

establishes the date of its formation in the third century AD. Meanwhile, in the wall corridor (space RA-1) a level of use that has not been recognised during the archaeological work seems to occupy this space between the collapse levels detected in the fourth phase and the next improvements to the living quarters.

5.5. *Fifth phase: Strengthening of the adobe wall and new dwelling improvements*

In sample trench RC, after the abandonment and ruin of the monastic cell (SU 24), the enclosure wall was reinforced on the inner side with a facade of mud brick rows (SU 16) which also appeared attached to the wall in sector RB3 (SU 8) and is also visible in several areas of the better preserved eastern wall (Pl. 4 and 6). This reinforcement wall structure lies over a set of consecutive strata and structures, such as a level of sand and a foundation platform of adobe and brick and covered by a hard grey layer containing small pebbles. Over these strata there is a level formed by heterogeneous contributions, which include remains from ruins of previous buildings (e.g. mud brick fragments and remains of lime wash probably from wall coatings), along with ash patches of uncertain origin, pebbles, sand and remains of organic material (SU 18) (Pl. 8). This layer provided a significant set of architectural pieces in limestone: a fragment of an arch cornice with decoration painted in red and gold leaf, a small column base, two fragments of decorative mouldings and several fragments of sculpted white limestone pieces. A sculpture fragment made in sandstone, showing characteristics of Hellenistic art style and features of the Bactrian art of the Kushan period (Pugachenkova *et al.* 1994: 352-356; Rtweladse 2009: 81-86; Mkrtyshew 2010) forming part of this important set of pieces has also been recovered. The composition of this level provides very significant information on the evolution of the occupation in Tchingiz Tepe, because all these pieces can be interpreted as evidence of refurbishment or renovation work of the monumental building located at the centre of the enclosure and of other structures within Tchingiz Tepe. Two ¹⁴C dates have been obtained for SU 18, which give a chronological framework for the changes carried out in the dwelling space and the construction of the internal reinforcement of the wall. The first one dates this layer between the end of the first and the mid-second century, cal AD 78-143 (1σ, 45.4%). However, this date should probably be reconsidered, as it is earlier than the

stratigraphic record and it differs from the second ^{14}C date, which is situated on a chronological frame between the beginning of the third and the beginning of the fifth century, cal AD 210-420 (1σ , 63.2%). Although other probabilities within the frame of the calibrated interval suggest a later date, the layer's position in the stratigraphic sequence allows us to establish a date no later than the mid-fourth century in view of the chronology of the upper levels, which have been accurately dated between the mid-third and mid-fourth century.

At this time, the inner curtain wall recovered in the corridor RA-1 of sample trench RA was also reinforced with three successive *pakhsa* walls (SUs 26, 66, 67) and a later wall built with rows of adobe bricks (SU 16) so that the corridor wall was reduced to 2m in width (fig. 6; Pl. 11). In room RA-2 a new reform took place, as evidenced by the formation of the stratum SU 37 mentioned above. This level was used as a preparation layer to arrange a new pavement (SU 32), which corresponds to the last level of use recovered in this room. Although the ^{14}C analysis suggests that this surface was formed in the third and fourth centuries AD, cal AD 225-395 (1σ) its position in the stratigraphic sequence dates its formation to the first half of the fourth century AD. Other improvements were performed in certain structures (SU 85) and it has also been verified that some elements were bricked up (SU 46) (fig. 6; Pl. 14a). The niche placed in the thick wall and the door placed between the western walls were built using adobe bricks and a sandy-clay cement (SU 45) (Pl. 14b and 14c). In our opinion, after removing the door, this room would have been accessed through a stair attached to a top level which has not survived.

5.6. *Sixth phase: Abandonment and collapse of the wall and its internal reinforcement*

After the wall repair documented in the previous phase, the stratigraphic record obtained in RC show indications of a new phase dominated by the creation of sedimentary deposits due to wind action and slippage (SUs 5, 4, 3) (Pl. 8). SU 5 is a level of wind-borne sand while SU 4 was deposited over it, constituting a compact red clay level, possibly formed by the weathering of mud brick fallen from the fortification wall. Finally, SU 3 is a stratum formed by sand mixed with abundant ash, and its formation has been related to anthropic and natural processes. ^{14}C dates obtained from SU 3, SU 4 and SU 5 are homogeneous and they fit into the same

chronological frame, placing this phase between the mid-third and mid-fourth centuries. So, this sequence of abandonment or low activity occurred immediately after the inner face of the mud brick walls had been repaired. The main evidence is the presence of sandy *facies* with a dark-coloured component and isolated fragments of charcoal which must probably be considered as remains of decomposed wood, most likely coming from the collapse of building structures such as roofs. This is supported by the results provided by the analysis of faecal phytoliths and spherulites identified in this layer (Portillo *et al.* 2011). The predominance of monocotyledons, mostly of the graminoid family—including important cereals such as wheat, barley and oats—is concordant with temperate, wet climates. Most of the morphologies of multicellular phytoliths observed indicate that these graminoids are found represented in all their parts, in florescences, stems and leaves, supporting the idea that they were introduced into the site complete. Furthermore, the presence of faecal spherulites confirms that the analysed sediment was at least partly made up of faecal remains and that these plants were possibly introduced as a component of the diet of domestic animals. Because this layer lies in a context of destruction-abandonment, it must be related to the material made up partly of the stems and leaves of cereals, presumably domestic, with additional faecal material rich in graminoids used to build the roof of the previous dwelling space. The use of these materials in the construction of buildings has been amply demonstrated in some ethnographic studies (Miller 1984; Anderson & Ertug-Yaras 1998). Finally, over the previous layer, a thick level of fallen bricks (SU 2) (Pl. 8), considered as the latest destruction layer of the previous structures, is dated to the late fourth or early fifth century AD, cal AD 335-412 (1 σ , 63.7%). The appearance of abundant architectural remains in limestone, including a fragment of a Corinthian capital from a pillar or pilaster and a fragment of cornice, may be indicators of the final destruction of a nearby monumental building, perhaps the religious centre already mentioned.

The last phase in the RA sector corresponds to the final collapse of the dwelling space and of the structures of the curtain wall. Several layers corresponding to different strata of abandonment and destruction together with layers related to natural agents of erosion and sedimentation have been documented following a slope in the east-west direction. In the corridor parallel to the defensive wall (space RA-1), a first destruction level (SU 25) is dated from a very poorly preserved bronze coin that belongs to

either Shapur III (380-388 AD) or Bahram IV (388-399 AD). Two more levels evidence the progressive collapse of the fortress. The room RA-2 was also sealed by a wide stratum (SU 24) composed of fragmented adobe bricks in a clay-sandy matrix presenting a sharp east-west slope, especially from the central part of the trench going west. The ^{14}C date obtained for this first collapse level is the late third and early fourth centuries AD, cal AD 276-332 (1 σ , 37.9%).

An even earlier date is provided by another stratum (SU 18) corresponding to a superior destruction level but which is dated between the second quarter of the second century and the first decade of the third century AD, cal AD 121-216 (1 σ , 57.8%). At the north-western end of sample trench RA (SU 23), another stratum of sand—probably formed by natural agents that were aeolic in origin—with abundant charcoal and pottery fragments points to an earlier date, cal AD 80-140 (1 σ , 63.7%). The preliminary results of the anthracological analysis (Piqué 2011) reveal the presence of abundant charcoal remains with *Salicaceae* (willow trees), monocotyledons, *Elaeagnus angustifolia* (oleaster), and to a lesser extent *Vitis vinifera* (common grape vine), *Tamarix sp.* (tamarisk), *Platanus orientalis* (plane trees), *Prunus sp.* (fruit-bearing trees) and *Juniperus sp.* (junipers). Because most of these tree species could correspond to the wood used in the construction of the dwelling space, the chronology they offer must be linked to the date of the construction works occurring during the course of the first and second phases. However, another sandy level (SU 47) with abundant charcoal and fauna remains along an east-west slope on the western end of sample trench RA-2 suggests a later formation date, cal AD 335-417 (1 σ , 65.6%), which may represent the real date of the last destruction occurring in the fortified site of Tchingiz Tepe. Similar to this is the date provided by a stratum of great expanse (SU 17), containing pottery and a small bronze coin, cal AD 323-429 (1 σ , 58.9%). Above this level, the stratum SU 13, rich in charred organic materials in a matrix of sand could be considered to be a destruction level caused by fire to a structure composed of organic materials, like the roof of room RA-2 (Pl. 15). Two other similar strata (SU 6=11 and SU 7) placed in an upper position covering most of the surface of the sample trench could be related to the same process of deposition affecting the collapse of the roofs of the dwelling area. The upper levels (SU 2 and SU 9), which covered most of sample trench RA were composed of adobe fragments which had fallen into a sandy-clay matrix together with a few fragments of sculptural relief in limestone, such

as a fragment of a pilaster or cornice decorated with reliefs (SU 9) and a fragment sculpted with acanthus leaves (SU 2). Because of the characteristics and composition, SU 2 can be considered equivalent to the SU 2 from sample trench RC.

5.7. Seventh phase: Late use of the fortress of Tchingiz Tepe

The most recent occupation level, documented only in sample trench RC, is represented by the remains of a construction of uncertain age, formed by a wall of adobe fragments and its associated infill containing shards and a fragment of cornice or the base of a pillar carved in sandstone, located between the dwelling wall and the inner reinforcement of the mud brick wall (SU 16). This housing sequence was located directly above SU 2, which had been cut to prepare a levelled surface (SU 14). The remains of this sequence are very poor, but suffice to propose a last phase of occupation of the space—probably residual, as it has not been documented in other excavated trenches.

6. A pottery workshop/craft area in Tchingiz Tepe

Between sample trenches RC and RA, sample trench RF (with a surface area of 90m²) was dug running north-south and parallel to the eastern curtain wall at a distance of 15m, near Towers 5 and 6 (fig. 3). During the survey a large pottery kiln was found which is not stratigraphically related to any of the dwelling structures detected in sample trenches RA and RC. At the beginning of the archaeological excavation, the supports of the perforated floor of the pottery chamber were almost on the same level as the current floor, suggesting that it was affected by erosive processes (Martínez 2009).

6.1. The pottery kiln

The kiln is rectangular in shape and measures 6.60m long by 2.10m wide with a south-east-north-west orientation and the entrance in the northern side. The firing chamber is 2.90m long by 1-1.40m wide, and with a maximum height of 0.80m (Pl. 16). The walls enclosing the kiln were built directly on the geological base—previously carved to hold up the wall—after digging the deposits of preceding periods. They were built using

adobe bricks with their inner side turned into a vitrified material due to the high temperatures reached during the firing of the pottery. Above the cooking chamber, the supporting points of the arches that held the kiln rack can be clearly observed in the upper part of the elevation on both the eastern and western walls. These arches, which have a width of 30-40cm, are arranged in parallel at 30cm intervals. Similarly, a series of oval perforations below 20cm in diameter appeared connected to the interior of the firing chamber through the free spaces between the supporting points of the arches on both sides of walls. Where the cooking chamber joins the fuel feed passage, both side walls have a set-back of 20cm which makes a right angle towards the interior to mark the narrowest point of the passage, which is roughly 3.30m long and 0.6m wide. Furthermore, at this point, the circulation floor is marked by a step in the rock base which places the floor of the corridor at a lower level than the firing chamber.

A wide level (SU 26) 72cm thick composed of carbonised branches and twigs, arranged horizontally and lying directly over the geological base of the passage, was recovered in a clearly primary position (Pl. 17). The charcoal appeared at the bottom and edges of the stratum whereas the central portion was formed by a high-potential layer of ash. It is evident that this level corresponds to the carbonised remains of fuel used in the last pottery firings performed in the kiln. Because of its position, it should be noted that the fuel must always have been deposited in the passage and there would have been no direct action of the fire on the pottery through the rack's air vents. Thus, heat would only have reached the firing chamber, allowing greater control over the firing. Anthracological analyses have identified several unspecified grasses as the organic material provided by SU-26 (Piqué 2009). ^{14}C analysis of a sample of the grasses dates this level between the mid-second and mid-third century AD, cal AD 138-197 (1 σ , 33.4%) and cal AD 207-254 (1 σ , 33.4%). To judge from this date, the kiln stopped being used during the third chronological phase documented in the archaeological trenches RA and RC.

6.2. *The use of the pottery kiln as a domestic dump*

Several layers comprising a large number of adobe brick fragments—some of them overfired—which fill the firing chamber space of the kiln, have been interpreted as collapse levels of the kiln structure. However, in the space defined by the corridor of the kiln, over the charcoal stratum

SU 26, two layers (SU 19 and SU 20) with abundant pottery and bones are believed to have been deposits of domestic remains filling the disabled kiln at a time when it was partly reused as a household dump. However, ^{14}C analyses of some of these levels, such as SU 22, cal AD 77-140 (1 σ , 48.5%) and SU 23, cal AD 68-175 (1 σ , 59.2%) give earlier dates than the charcoal level SU 26. In our opinion the dates of the more recent layers seem less reliable than samples of the kiln fuel, which was identified as *gramineae*, *taxa* with a short period of life. The ^{14}C date obtained from the kiln fuel probably corresponds to the time of death of the plant, a more accurate date than those obtained from plants used for timber (Schiffer 1986).

In the case of SU 20, the chronological interval is remarkably wide—cal AD 80-580 (1 σ)—a fact that, in principle, invalidates the analysis result of the sample. Nevertheless, the ceramic context associated to this level presents some characteristics—the low degree of fragmentation of the pieces—that define it as a primary formation unit and therefore ascribable to a specific moment in history. If we add to this its stratigraphic position we can establish the chronology of its formation between the fifth and sixth centuries AD.

7. Interpreting the occupation sequence in Tchingiz Tepe

The first point we can infer from the study of the stratigraphic sequence of Tchingiz Tepe is the shortage of primary contexts with elements that can be reliably dated and allow us to create absolute chronologies in line with their otherwise well defined stratigraphic position. Nevertheless, by obtaining a large number of absolute dates for a well-documented archaeological stratigraphic sequence we have been able to extract very precise and objective information on the evolution of the occupation of the hill, for which seven phases have been established. First, we have proven that the formation of all the deposits covering the sandstones of the natural substratum is anthropic in nature. No sterile levels have been detected lying directly on the substratum, indicating that it was visible at the time when construction work began on the wall, which is the earliest structure in the whole of the occupation sequence. The wall situated at right angles to the wall and documented at the north of Tower 4, which has been linked to the *proteichisma*, was also in existence before the construction of the curtain wall—the mud bricks of the wall are superposed and follow its contour line—but it may well have been from an earlier sequence or the result of

a building technique that combines *pakhsa* and mud brick structures. In other words, at present we do not know whether the construction of these elements was carried out successively within the same work programme in Tchingiz Tepe, where various building techniques may have been implemented—*pakhsa* and mud bricks, for example—or whether they were devised and built for defensive purposes throughout different occupation stages of the hill.

The building technique used for the curtain wall has been also documented. It seems uniform, at least on the eastern and southern sections. The sandstone substratum was first levelled and in some places slight steps were created to adapt the cuts to the sloping topography of the sandstone substratum. A foundation platform was built on this levelled substratum, consisting of horizontal levels composed of alternating sandy clay strata containing ceramics and a level of grey sand with an abundance of rock fragments with hardly any ceramics at all. ¹⁴C datings obtained in sample trenches RB1 and RB2 are highly conclusive and establish the construction of the defensive wall between the beginning of the second century BC and the mid-first century BC. These datings even precede the initial phase of the Kushan Empire—the date of the formation of this empire is still a matter of debate, although it is usually taken to be the first century AD (Enoki *et al.* 1994: 179-180; Puri 1994: 247-252).

Therefore, the construction of the curtain wall should be dated to the period of the conquest of Bactria by the Yuezhi nomads. The Yuezhi—named Tokharians in the Greco-Roman sources—migrated from the present-day Chinese province of Gansu due to the pressure of the Huns and established a confederate state with its capital in Bactra (Enoki *et al.* 1994: 179-180). Some scholars have pointed out that this nomadic conquest was soon followed by a certain degree of prosperity and urban development, as reflected by the significant increase in the number of settlements during the first century BC (Enoki *et al.* 1994: 182-184). Moreover, this period also saw the rise of Dalverzin Tepe or Zar Tepe in the Surkhan Darya valley, which would later become major centres, and the expansion of earlier cities such as Khalchayan or Kampyr Tepe (Enoki *et al.* 1994: 184; Dvuchyenskaya 2006; Rtweladse 1994, 2009: 54, 78-81, 2010). No architectural structures suggesting an attempt at urban planning inside the fortress of Tchingiz Tepe have been located.

In the second phase, after the foundation of the defensive wall, which we can place in or around Kanishka I's reign, the earliest levels of use and

circulation as well as the first architectural structures corresponding to the *pakhsa* walls are documented. Besides the presence of coins, we have absolute chronologies that endorse the occupation of the wall space at that time. A series of strata (SU 18 from sample trench RC, SU 23 and SU 36 from sample trench RA and SU 22 and SU 23 from sample trench RF) offer chronologies that we can date between the last third of the first century AD and the last third of the second. The dated materials from sample trenches RA and RC are deposited in a context of destruction-abandonment of previous structures that must correspond to the first urban settlement erected in the Tchingiz Tepe enclosure between the years 70-170 AD. However, the remains detected are only marginally significant and shed little light on the internal organisation or function of the walled enclosure.

The stratigraphic sequence and ^{14}C datings show a continuous occupation in Tchingiz Tepe during the period corresponding to the rule of the first Kushan dynasty. Between the mid-second century and the mid-third century AD (the third and fourth phases), the eastern part of the site was occupied with dwellings attached to the interior side of the curtain wall and a corridor which ran parallel to the wall. To judge from their architectural characteristics and the artefacts found, these dwelling spaces were probably part of a large Buddhist monastic complex. Both the room located in sample trench RA-1 and the dwelling space recovered in sample trench RC are very similar to the monks' living quarters in the Buddhist monasteries of Kara Tepe (Dani & Litvinsky 1996: 111-112; Mkrtyshev 2007, 2010; Pidaev & Kato 2010), consisting of rooms with walls c. 20-60cm thick, made of adobe bricks and plastered white and, in some of the preserved cases, covered with a red pigment. The bench recovered in sample trench RC is similar to the ones found in the monks' living quarters situated in the eastern side of the monastery building of Kara Tepe. Moreover, vaulted niches similar to the one recovered in room RA-1 were also found in several areas in Kara Tepe: at the centre of the western side of the main stupa, in the north and south-east hallway of the courtyard and in some cells on the eastern side of the monastery building. In all cases, they seemed to have been used to place statues of the sitting Buddha, as evidenced inside two niches located at the northern and western hills of Kara Tepe. There, a furnace has been detected in a room which also contained a niche, though no connection between the two has been established. Built fire altars, which have been related to Zoroastrian worship, have also been recognised in a room in the independent building to the west of the monastery of

Kara Tepe and in the southern hill, in addition to the ones recovered in Dalverzin Tepe and Kampyr Tepe (Pidaev & Kato 2010). However, the hearths recovered over the floors of rooms RA-1 (SU 51 and SU 43) and RC (SU 27) cannot be associated with a specific function at present.

With regard to the material culture, items similar to the ones found in Tchingiz Tepe are well known in the Buddhist monasteries of Kara Tepe, such as pottery and *ostraca* probably written in Kharosthi script. Kara Tepe has also provided similar artefacts to the lotus flower and the lid—related to the repaired amphora—found in SU 25 from sample trench RC (Pl. 18). There, more than twenty container lids, some of them decorated with bands of lotus flowers in full bloom, were recovered in several rooms (Pidaev & Kato 2010). It has been suggested that these lids were used to close sacred containers, and although no association of this kind was confirmed in the finds at Kara Tepe, this use appears likely (Pugachenkova *et al.* 1994: 367). Also, the finish and quality of the sculptural remains found in Tchingiz Tepe and Kara Tepe, especially the ones in limestone, share the same high level of craftsmanship and respond to both very similar artistic techniques and themes. As in the case of the sculptures located at Kara Tepe, all these pieces appear to have been sculpted from limestone carried down from Orlinnaya Sopka (Eagles' Hill), located around 30km from Ancient Termez (Mkrtyschew 2007, 2010; Pidaev & Kato 2010). However, the investigation carried out in the southern and eastern ends of Tchingiz Tepe has not yielded, to date, either the abundance of sculptures or the remains of wall paintings or the religious elements characteristic of Buddhism such as altars and stupas which have been documented both in Kara Tepe and Fayaz Tepe.

This is not the only evidence of dwellings linked to the use of the fortified enclosure as a Buddhist religious centre. The interior space of Tower 8 was re-occupied with a room structure which could also be interpreted as a monastic room or cell (fig. 8). Its structure included two long parallel benches and a narrower perpendicular bench resting on the interior face of the tower, two large ceramic recipients, attached to the parallel benches and a central brazier. To summarise, this structure is very similar to the one detected in RC, although in the case of Tower 8, it is double. The evidence mentioned supports the hypothesis that the great building erected in the centre of Tchingiz Tepe was a Buddhist temple which was the origin of most of the sumptuary materials recovered in our excavations. This interpretation is also supported by the architectural similarity between

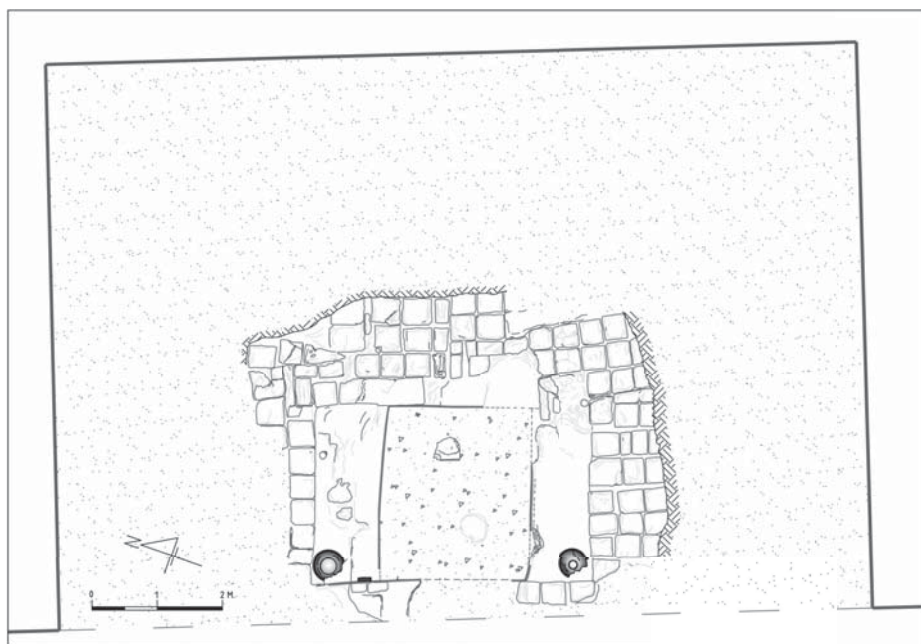


Fig. 8. Tchingiz Tepe. General plan of the monastic cell built in the interior space of the Tower 8 (Topographic mapping: J. Miquel).

this building and some of the constructions in the Buddhist monastery of Kara Tepe (Dani & Litvinsky 1996: 111-112; Mkrtyschew 2007, 2010; Pidaev & Kato 2010). So it emerges that, during a certain period of time, Tchingiz Tepe was an important centre of Buddhist worship with a monumental temple in its central area, and a dwelling zone built for monastic use.

There are also sufficient signs to suggest that the wall was neglected during the time when the enclosure became a religious site, as the collapse levels of the wall detected in RB2 have been dated to that precise moment. The use of the kiln in sector RF coincides chronologically with this phase and it presents further support for the idea that at that time the area may have been occupied by an entity with a certain economic and productive autonomy. In conclusion, the data suggest that the establishment of a Buddhist centre in Tchingiz Tepe is an addition to the others—Kara Tepe, Fayaz Tepe and Zurmala—in Ancient Termez. Taken together, these data confirm the expansion of the Buddhist religion in Bactria during the Kushan Empire and

the large-scale development of many urban centres, such as Begram, Dalverzin Tepe, Zar Tepe, Surkh Kotal and Kampyr Tepe (Dani & Litvinsky 1996: 111-114).

The archaeological stratigraphy of Tchingiz Tepe shows that the use of the enclosure as a Buddhist centre was abruptly interrupted or considerably reduced around the mid-third century AD. However, this walled settlement appears to have resumed its original function as a fortification enclave with clear defensive functions. The wall was reinforced with a façade of adobe attached to the interior face of the curtain wall, thus increasing its width. The wall repair meant the end of the monastic cell in sector RC which had lasted until the early third century AD and ended up sealed by various strata of abandonment and destruction dated between the mid-third and the mid-fourth century AD. Meanwhile, the house located in RA survived, as a new renovation phase (the fifth phase) and the laying of various pavements have been documented leading us to establish these actions within the first half of the fourth century AD. The work involved the closure of the accesses to the room and the sealing-off of the space occupied by the niche. These transformations indicate that from this moment onwards the room may have ceased to function as a space for worship; from this we can infer that these changes had a fundamental effect on the monastic community established in the fortified enclosure. Nevertheless, these details will have to be confirmed in future interventions on this and other areas of the site. Other evidence supporting a change in function or, at least, a new use of the enclosure are the structures built to strengthen the internal side of the curtain wall, documented in all the excavated areas of the eastern side of the enclosure and also visible on the surface in all the sections where the structure remains in a good state of preservation. Many important building remains that must have come from other previous structures were used in the construction of the foundations of the reinforcement walls, built up combining the *pakhsa* technique and adobe bricks—remains such as cornice fragments, mouldings, column bases, and fragments of stupas (Pl. 18).

The alteration in the defensive structures must have been more complex and would have also affected the towers. Tower 9 showed adobe reinforcements on its external face, which probably correspond to this phase, even if it is not possible to place them in the stratigraphic sequence. The internal side of Tower 5 was reinforced with an attached wall which has been ¹⁴C dated to this time frame, although it is a little inconclusive. During the fifth

phase Tchingiz Tepe resumed the defensive function for which it was originally designed, perhaps as part of the process that led to the disappearance of the Kushan dynasty after its subjugation to the new emerging power in the area, the Sassanian Empire (Litvinsky *et al.* 1994; Dani and Litvinsky 1996).

Therefore, the monastic occupation within the fortified enclosure of Tchingiz Tepe documented during the fourth phase may well have been profoundly affected by the Sassanian invasion of Bactria in the mid-third century AD. However, the occupation of Tchingiz Tepe during the Sassanian Empire does not extend beyond the end of the fourth or the beginning of the fifth century AD. Levels of wall collapse corresponding to the final sequence (sixth phase) of the enclosure have been detected in almost all the spaces excavated. The absolute datings obtained in the sequence are quite precise, and the final moment can be established in the second half of the fourth century AD or more probably the beginning of the fifth. From this date onwards the signs of occupation in Tchingiz Tepe disappear, the only exception being the few dwelling places remains preserved in RC and dated from the beginning of the fifth century AD. The final destruction of the Buddhist centre at Tchingiz Tepe (the sixth phase) coincides with the abandonment of the Buddhist monasteries of Kara Tepe and Fayaz Tepe (Pidaev & Kato 2010) and probably of other architectural complexes in Ancient Termez as well, due in all likelihood to the invasion by nomadic tribes, Chionites or Huns, which founded the Kidarite state in the territory of ancient Bactria-Tokharistan (Zeimal 1996).

8. Conclusions

The work carried out by the *IPAEB* team at Tchingiz Tepe has allowed the reconstruction of six occupational phases from the earliest stages (second century BC to the mid-first century AD) to its final abandonment in the early fifth century AD. The fortified wall was the first construction, but any living quarters that may have existed inside the fortress at this time have not left architectural remains. Considering that the first settlement dates from the time of the invasions by the nomadic Yuezhi, we can assume that during the first phase of the fortification the inhabitants would have lived in nomad tents or huts built of perishable materials. In the second chronological phase, corresponding to the kingdom of the first Kushan dynasty, a Buddhist centre was erected inside the fortress of Tchingiz

Tepe. Clear evidence of the presence of this Buddhist site is only documented in the third and fourth chronological phases. However, the structures documented in the second phase may also be related to the first constructions which would later form the basis of the monastic complex. Moreover, the identification of a Buddhist centre at Tchingiz Tepe provides new data for a re-interpretation of the structures of the hill that we already know. Thus, the monastic building at the centre of the hill, previously considered as a religious or funerary site, should now be interpreted as a Buddhist temple.

The large-scale development of Termez as an urban and religious centre during the Kushan period may well be related to the quantitative growth of the urban settlements at this time in Bactria. Litvinsky (1994: 299-303) argued that, in the Kushan period, old cities increased in density and urban construction. In addition, the foundation of new cities entailed a further developed organisation, which consisted in the division into three main parts: the citadel, the main city, and the suburbs. These new cities contained houses, workshops, religious buildings—especially Buddhist shrines—temples, and cemeteries. Moreover, all the cities documented in this period are well fortified with thick walls, reinforced with square rather than round towers and surrounded by deep ditches. This also coincides with the spread of Buddhism in Central Asia, which has been dated at different times by scholars (Harmatta *et al.* 1994: 314; Rtveladse 2009: 171). It is suggested that the Buddhist missions in northern Bactria date back to the first century BC and that the first Buddhist structures were built over the following 200 years, as confirmed at Tchingiz Tepe as well as at Airtam, Kara Tepe and Fayaz Tepe. Rtveladse (2009: 172) also sets the strengthening of Buddhism and its spread into Sogdiana and Margiana over the second century and the first half of the third century AD. This information matches the date of the occupation of the monastic complex of Tchingiz Tepe enclosure as the archaeological evidence suggests that monastic activity was at its peak at this time. In addition, several improvements have been verified in the Buddhist cells, and major reforms have been documented at the end of the first Kushan dynasty.

From the mid-third century until the end of the fourth century AD, a large programme of reforms is documented in the eastern monastic rooms of the fortress in order to strengthen the curtain wall and the structures of the living area (fifth phase). All this activity can be dated to the time of the invasion of the Sassanians from Iran, as Tchingiz Tepe lost importance as

a religious centre and the influence of Buddhism in northern Bactria gradually declined. The fortress seems to have recovered its initial defensive function under Kushan-Sassanian rule until its final collapse and abandonment at the end of the fourth century and the beginning of the fifth (sixth phase). This dramatic event seems to have been caused by the nomadic invasions of the Chionites or Huns, which concluded with the conquest of Bactria at the mid-fifth century AD.

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Table 1: Analysed samples and ¹⁴C results.

Column A: Excavation area and SU (Stratigraphic Unit).

Column B: Dating material reference and radiocarbon date code assigned by this laboratory, respectively.

Column C: Radiocarbon date with uncertainty expressed in terms of standard deviation

Column D: Experimental calibrated dates corresponding to the intersection of the radiocarbon date with the calibration curve; they correspond to the maximum modes of the probability distribution of the calibrated data.

Columns E and F: Calibrated date intervals centred on the modes of probability distribution for the true calibrated date corresponding to a total probability of 68.3% and the probability associated with each interval respectively. In this set of intervals there is a probability of 68.3% that the true calibrated date will be found.

Columns G and H: Calibrated date intervals centred on the modes of distribution of probability of the true calibrated date corresponding to a total probability of 95.4% and the probability associated with each interval respectively. In this set of intervals there is a probability of 95.4% that the true calibrated date will be found.

A	B	C	D	E	F	G	H
RB1-UE 5 Charcoal	UBAR-989 CNA366	2130± 45 BP	cal BC 174	cal BC 343-324 cal BC 205-91 cal BC 67-63	7,3% 59,6% 1,4%	cal BC 356-285 cal BC 255-249 cal BC 234-44	17,8% 0,5% 77,1%
RB2-UE 6 Charcoal	UBAR-1143	1745±35 BP	cal AD 258 cal AD 298 cal AD 320	cal AD 246-336	68,3%	cal AD 217-399	95,4%
RB2-UE 10 Bone	UBAR-1144 CNA1190	2075±40 BP	cal BC 90 cal BC 72 cal BC 59	cal BC 162-130 cal BC 119-46	19,3% 49,0%	cal BC 197-AD 2	95,4%
RB2-UE 11 Charcoal	UBAR-1145 CNA1189	2095± 55 BP	cal BC 152 cal BC 138 cal BC 112	cal BC 186-48	68,3%	cal BC 353-293 cal BC 230-218 cal BC 213-AD 23	8,1% 0,9% 86,4%
RC-UE 2 Charcoal	UBAR-1043	1680± 35 BP	cal AD 386	cal AD 265-272 cal AD 335-412	4,6% 63,7%	cal AD 255-428	95,4%
RC-UE 3 Charcoal	UBAR-1044	1760± 35 BP	cal AD 254 cal AD 310	cal AD 235-336	68,3%	cal AD 139-159 cal AD 165-195 cal AD 209-385	2,7% 4,7% 88,0%
RC-UE 4 Charcoal	UBAR-1045	1740± 50 BP	cal AD 259 cal AD 290 cal AD 321	cal AD 240-350 cal AD 368-380	63,0% 5,3%	cal AD 139-159 cal AD 165-196 cal AD 209-411	2,2% 3,9% 89,2%
RC-UE 5 Charcoal	UBAR-1046	1755± 45 BP	cal AD 256 cal AD 302 cal AD 316	cal AD 231-348 cal AD 369-378	65,4% 2,9%	cal AD 138-199 cal AD 206-395	10,6% 84,8%
RC-UE 10 Charcoal	UBAR-990	1940±130 BP	cal AD 69	BC 90-75 cal BC 55-AD 235	2,2% 66,1%	cal BC 350-315 cal BC 210-AD 390	1,4% 94,0%
RC-UE 18 Charcoal	UBAR-1047	1730±100 BP	cal AD 262 cal AD 279 cal AD 327	cal AD 143-147 cal AD 171-193 cal AD 210-420	0,8% 4,3% 63,2%	cal AD 84-536	95,4%

A	B	C	D	E	F	G	H
RC-UE 18 Charcoal	UBAR-1090 UBAR-1091	1875± 40 BP	cal AD 128	cal AD 78-143 cal AD 147-171 cal AD 193-210	45,4% 12,9% 10,0%	cal AD 57-237	95,4%
RC-UE 21 Charcoal	UBAR-1048	1800± 45 BP	cal AD 236	cal AD 136-255 cal AD 305-312	65,5% 2,8%	cal AD 87-105 cal AD 121-345	1,9% 93,4%
Tower 5 deposit Charcoal	UBAR-1049	1790±35 BP	cal AD 238	cal AD 139-157 cal AD 166-195 cal AD 209-258 cal AD 299-319	7,9% 14,6% 34,8% 11,0%	cal AD 130-266 cal AD 271-336	71,8% 23,6%
RF-UE 20 Charcoal	UBAR-1053	1690±230 BP	cal AD 355 cal AD 366 cal AD 381	cal AD 85-580	68,3%	cal BC 345-320 cal BC 205-AD 780 cal AD 790-810 cal AD 845-855	0,5% 94,4% 0,4% 0,1%
RF-UE 22 Charcoal	UBAR-1054	1875± 35 BP	cal AD 128	cal AD 77-140 cal AD 150-170 cal AD 194-210	48,5% 11,0% 8,8%	cal AD 63-232	95,4%
RF-UE 23 Charcoal	UBAR-1055	1885± 50 BP	cal AD 126	cal AD 68-175 cal AD 191-212	59,2% 9,1%	cal AD 5-13 cal AD 16-244	0,7% 94,7%
RF-UE 26 Charcoal	UBAR-1056	1800± 35 BP	cal AD 236	cal AD 138-197 cal AD 207-254	33,4% 34,4%	cal AD 129-263 cal AD 276-331	78,5% 16,9%
RA-UE 17 Charcoal	UBAR- 1146	1670± 55 BP	cal AD 395	cal AD 260-284 cal AD 323-429	9,4% 58,9%	cal AD 248-467 cal AD 480-533	85,4% 10,0%
RA-UE 18 Charcoal	UBAR- 1147 CNA1285	1860± 45 BP	cal AD 130	cal AD 87-104 cal AD 121-216	10,5% 57,8%	cal AD 56-249	95,4%

A	B	C	D	E	F	G	H
RA-UE 23 Charcoal	UBAR- 1148	1875± 35 BP	cal AD 128	cal AD 80–140 cal AD 150–170 cal AD 194–210	47,2% 11,7% 9,4%	cal AD 69–229	95,4%
RA-UE 24 Charcoal	UBAR- 1149	1770± 35 BP	cal AD 246	cal AD 222–264 cal AD 276–332	30,4% 37,9%	cal AD 135–346 cal AD 373–376	95,0% 0,4%
RA-UE 32 Charcoal	UBAR- 1150	1740± 70 BP	cal AD 259 cal AD 295 cal AD 321	cal AD 225–395	68,3%	cal AD 85–105 cal AD 120–435 cal AD 495–505 cal AD 520–525	1,0% 93,5% 0,6% 0,3%
RA-UE 36 Charcoal	UBAR- 1151	1870± 35 BP	cal AD 129	cal AD 83–142 cal AD 148–171 cal AD 193–210	44,3% 13,2% 10,8%	cal AD 72–230	95,4%
RA-UE 37 Charcoal	UBAR- 1152	1810± 90 BP	cal AD 231	cal AD 90–105 cal AD 120–265 cal AD 275–335	3,7% 47,7% 16,9%	cal AD 5– 10 cal AD 15–420	0,2% 95,2%
RA-UE 42 Charcoal	UBAR- 1153	1730± 90 BP	cal AD 261 cal AD 279 cal AD 327	cal AD 183–186 cal AD 215–420	0,4% 67,9%	cal AD 90–105 cal AD 120–470 cal AD 480–535	1,1% 89,2% 5,1%
RA-UE 47 Charcoal	UBAR- 1154	1675± 35 BP	cal AD 389	cal AD 267–271 cal AD 335–417	2,7% 65,6%	cal AD 252–433 cal AD 496–503	94,8% 5,6%
RA-UE 51 Charcoal	UBAR- 1155	1880±140 BP	cal AD 127	cal BC 35–30 cal BC 25–10 cal BC 5–AD 260 cal AD 285–325	1,5% 2,2% 58,4% 6,2%	cal BC 200–AD 435 cal AD 495–505 cal AD 520–525	94,8% 0,4% 0,2%



Pl. 1. Tchingiz Tepe. View of the eastern wall, from Tower 1 southwards (Photo: the authors).



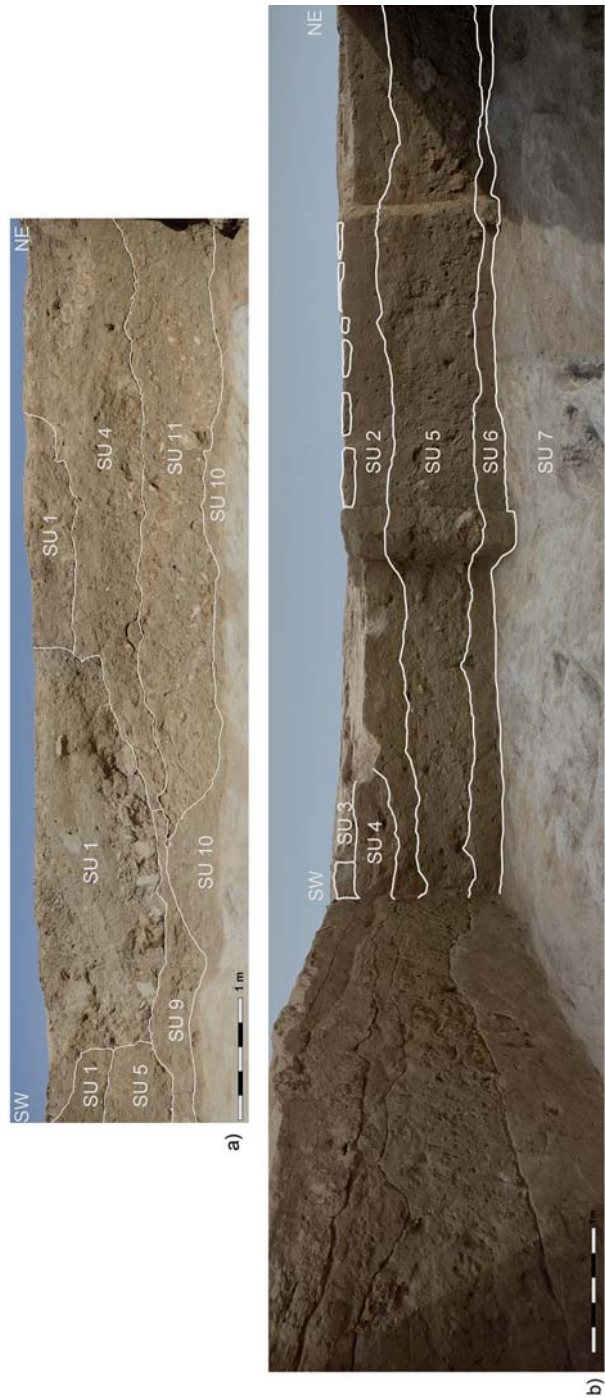
Pl. 2. Tchingiz Tepe. The *Proteichisma* (Photo: the authors).



Pl. 3. Tchingiz Tepe. View of the religious building in the central area of the fortified site (Photo: the authors).



Pl. 4. Tchingiz Tepe. a) View of traces of bedrock carved in sample trench RB2; b) View of traces of bedrock carved in sample trench RB3, the fortified wall, the internal reinforcement and the foundation strata (Photos: the authors).



Pl. 5. Tchingiz Tepe. Section of the stratigraphic sequence in sample trenches RB2 (a) and RB3 (b) (Photos: the authors).



Pl. 6. Tchingiz Tepe. View of traces and bedrock carved and the step in sample trench RC at the end of the excavation and the internal reinforcement of the fortification wall (Photo: the authors).



Pl. 7. Tchingiz Tepe. View of the bedrock in sample trench RA at the end of the excavation (Photo: the authors).



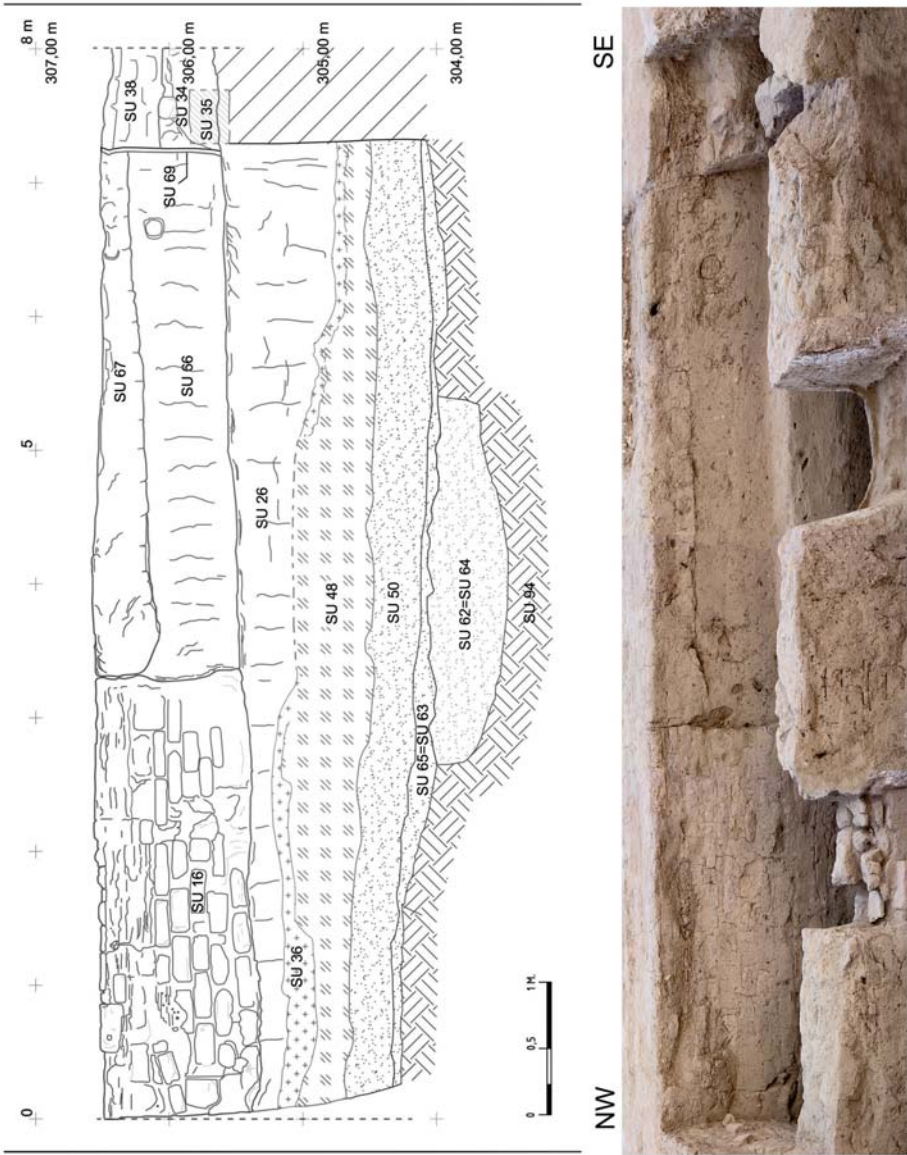
Pl. 8. Tchingiz Tepe. Section of the stratigraphic sequence in sample trench RC, southern side (Photo: the authors).



Pl. 9. Tchingiz Tepe. View of the earliest floor of room RA-2 in sample trench RA during the 2nd phase, with the quadrangular hearth in the centre (Photo: the authors).



Pl. 10. Tchingiz Tepe. View of the corridor (RA-1) that runs between the wall reinforcement (left) and the wall SU 40-14-70 (right) in sample trench RA in the 3rd phase (Photo: the authors).



Pl. 11. Tchingiz Tepe. Section N-S of the stratigraphic sequence of the corridor (RA-1) in sample trench RA (Topographic J. Miquel) and view of the wall SU 70 with the window and the niche (4th phase) at the front and the inner reinforcement walls of the defensive curtain at the back (5th phase) (Photo: the authors).



Pl. 12. Tchingiz Tepe. Aerial view of the sample trench RC (4th phase), with the Buddhist monastic cell attached to the defensive wall and later partially by the internal reinforcement of the wall (Photos: the authors).



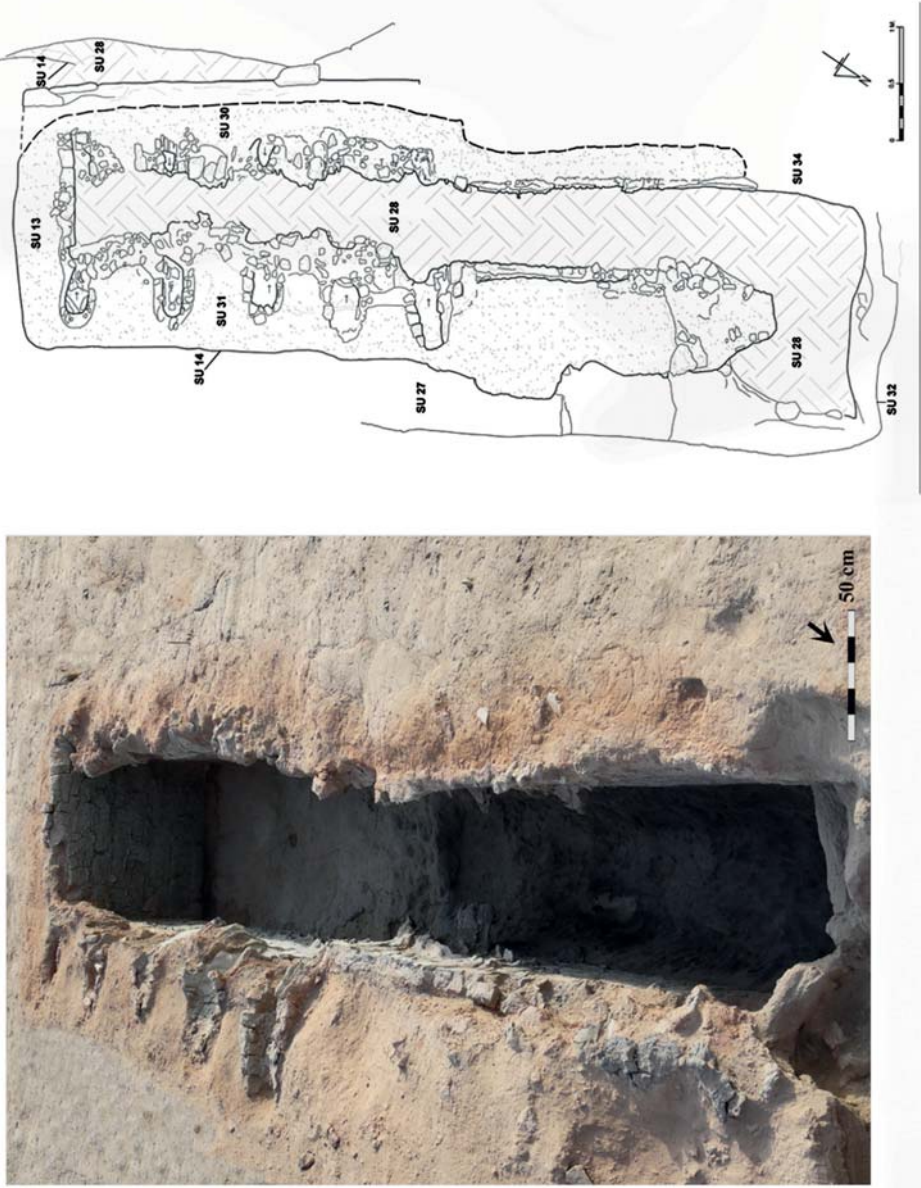
Pl. 13. Tchingiz Tepe. View of the wall SU 40-14-70 in sample trench RA with the window at the north and the niche in the centre, in the 4th phase (Photo: the authors).



Pl. 14. Tchingiz Tepe. View of some of the bricking works detected in sample trench RA during the 5th phase: a) Wall SU 46 that prevents access to room RA-2; b) The package used to wall the niche in SU 70 seen from room RA-2; c) The package used to wall the niche in SU 70 seen from room RA-1 (Photos: the authors).



Pl. 15. Tchingiz Tepe. Levels of destruction of the dwelling space in sample trench RA (6th phase), and the remains of a modern military trench on the right (Photo: the authors).



Pl. 16. Tchizingiz Tepe. View and planimetry of the pottery kiln from sample trench RF at the end of the excavation (Photo: the authors, topographic mapping: J. Miquel).



Pl. 17. Tchingiz Tepe. Remains of charcoal and ash from SU 26 recovered in the corridor of the pottery kiln in sample trench RF (Photos: the authors).



Pl. 18. Tchingiz Tepe. Sculptural remains of limestone and ceramic found in the stratigraphic sequence of Tchingiz Tepe; a) RA SU 9; b) RF SU 22; c) RC SU 18; d) RC SU 18; e) RC SU 2; f) RC SU 25; g) RC SU 25 (Photos: the authors).